

Unit 4:

PREPARING FOR HAZARDOUS MATERIALS INCIDENTS

In this unit, you will learn about:

- .The importance of the Local Emergency Operations Plan
- .Responsibilities of local, State, and Federal government and emergency response forces in a hazardous materials incident
- .How to protect yourself and your family during a hazardous materials incident

In September 1988, a minor chemical accident at a swimming pool supply plant near Los Angeles released a highly toxic gas over a six square mile area, forcing 25,000 people from their homes within a matter of hours. Emergency personnel and city and county government staff members responded to the incident. Over the next few hours, fire engines, police cars, emergency medical technicians, the mayor, the county emergency services director, and the hazardous materials response team arrived to assist with management and cleanup duties.

The rapid escalation of resources on the scene associated with such serious hazardous materials incidents raises a key issue. How do all these people know what to do in the crucial first minutes of an emergency to contain the disaster and avoid making the situation even worse?

The answer lies in a good emergency operations plan. Such a plan will prevent role confusion and logistical tie-ups that can hamper an efficient response.

IS YOUR COMMUNITY PREPARED FOR A HAZARDOUS MATERIALS INCIDENT?

Experience in disasters has shown repeatedly that when emergency plans and procedures are known, exercised, and kept up-to-date by operating forces, reaction times are reduced, coordination is improved, and overall response and recovery measures are more effective and efficient.



Your community Emergency Operations Plan serves as a blueprint for its response to a potential hazardous materials incident.

Your community's Local Emergency Operations Plan serves as a blueprint for response to many types of emergencies that could occur in your community, including a hazardous materials incident. Ideally, the plan will have been prepared by a multi-disciplinary team of specialists familiar with:

- The hazards in your area,
- The local resources available to respond to an incident, and
- The resources of neighboring jurisdictions, as well as from States and the Federal government.

The hazardous materials plan should be one component of a more comprehensive plan detailing how your community would respond to various types of disasters. The key components of **a complete local plan** are the following:

- The **basic plan**, which is a relatively broad conceptual framework describing the policy and approach to emergency operations.
- Supporting annexes** that contain information on specific functional responsibilities, tasks, and operational actions needed to deal with particular hazards. The focus of an annex is on operations—what the function is and how it is carried out. Annexes are action-oriented and written for personnel charged with execution of the plan. Examples of annexes include warning, evacuation, and fire and rescue.
- Implementing procedures**—these may be in the form of hazard-specific appendices, standard operating procedures, or checklists. They support annexes and contain technical and detailed operational information for use by emergency personnel, including such information as lists of people to alert under specified conditions, and specific “how to” instructions for operating departments or individuals to carry out assigned responsibilities.

Because the requirements of hazardous materials incidents differ markedly from those of other emergencies, a separate hazardous materials annex to the generic operations plan is needed to address these issues. The plan outlined in the annex should be comprehensive, but specifically tailored to your community's unique situation. For example, local fire service jurisdictions must reach specific agreements on how they will communicate and work together in an emergency. Local industries must be approached **beforehand** to ensure that critical equipment can be made available in the event of an emergency, with agreements in place to facilitate leasing or lending.

Once in place, the hazardous materials annex to the plan should allow your community to respond quickly and effectively to a hazardous materials incident. Its benefits will extend beyond this, however. The planning process itself—by bringing together local

officials, response workers, citizen volunteers, and industry representatives involved **with** hazardous materials—opens important lines of communication. Through dialogue, planners can find options for minimizing the chances of a major hazardous materials incident, and prepare to work together efficiently if a major or minor incident does occur.

The summary at right reviews the basic elements that comprise an effective plan.

Detailed instructions for preparing an effective plan are published by the National Response Team. (See the listings at the end of this course.)

The Planning Process

Under Title III provisions, the SERC decides how many planning districts are needed to prepare adequate plans for responding to chemical emergencies throughout that State. Some States have LEPCs at the county level, while others have designated the entire State as a planning district with one LEPC. The SERC is responsible for appointing individuals to serve as LEPC members in each planning district.

Each LEPC prepares a plan based on a thorough understanding of the hazards faced by the specific area and the resources it has to meet them. The following steps would be required to complete a sound plan for **any** emergency.

1. Identifying Participants

The LEPC should include members with diverse experience. The group's collective expertise should include experience in **planning**; knowledge of the community; experience with the **local response forces**; and knowledge of hazardous materials, their effects, and appropriate medical treatments.

2. Analyzing Risks

The LEPC reviews and critiques any community plans that may already exist. It then determines the community's potential hazardous materials risks, primarily through the use of reports submitted by local industries under Title III, but supplemented by analysis of hazardous materials transport and other potential local hazards not addressed by the legislation.

3. Identifying Special Populations and Areas of Concern

The LEPC takes a close look at the community to identify areas

REQUIRED ELEMENTS OF A LOCAL EMERGENCY RESPONSE PLAN

To be effective, a local emergency response plan must:

- Use the information provided by local industry to **identify** where hazardous substances are used and stored, and the routes used for transporting such substances.
- Establish emergency response procedures, including evacuation plans, for use in the event of an accidental chemical release.
- Set up notification procedures to contact designated emergency response personnel.
- Establish methods for determining the occurrence and severity of a release, and the areas and populations that the release would be most likely to affect.
- Establish ways to notify the public of a release.
- Identify the emergency equipment available in the community, including equipment at facilities.
- Devise and schedule a preparedness program to train local emergency personnel and medical workers in response procedures for chemical emergencies.
- Devise methods and schedules for conducting "exercises" (simulated emergencies) to test elements of a proposed response plan.
- Designate a **community coordinator** and **facility coordinators** to be responsible for the smooth execution of the plan.

To be effective, an emergency response plan must address the unique characteristics of the community it is to serve—a "fill-in-the-blanks" type of plan simply will not do.

that are particularly vulnerable to incidents, and populations that would require special planning to protect or evacuate them in an emergency (such as nursing home residents).

4. Identifying Available Resources

COMPOSITION OF A TYPICAL LOCAL EMERGENCY PLANNING COMMITTEE (LEPC)

- State and local elected officials
- Law enforcement representatives
- Civil defense representatives
- Firefighting representatives
- First aid representatives
- Health, local environmental, hospital, EMS, and transportation personnel
- Representatives of community groups
- Owners/operators of facilities that manufacture, store, or transport hazardous materials
- Representatives of the media
- Public works representatives

Makeup of a typical Local Emergency Planning Committee (LEPC).

The LEPC works with local police and fire officials to determine the response capabilities of their departments, then gathers information to understand the incident response role played by surrounding communities and State and Federal government agencies. Capabilities of these secondary sources are then assessed. The Committee then determines the response capabilities of local industry and transporters, specifically those which have the potential to be involved in a hazardous materials incident.

On the basis of this information, the LEPC develops a resource list, detailing where equipment and personnel may be obtained to help with a hazardous materials emergency, and whom to call for assistance. It also designates the specific responsibilities of all resources—police, fire, and other city departments, as well as volunteers and key private sector organizations—in the event of a hazardous materials incident.

5. Drafting the Plan

A draft hazardous materials emergency plan is prepared by the LEPC, reviewed and approved by all parties assigned responsibilities under the plan, and revised to incorporate comments. Finally, the LEPC distributes and explains the plan to key emergency response and government personnel, and **periodically updates** it to reflect changes within the community or within its local government

6. Testing the Plan

Once the plan is in place, the community must conduct **exercises** (simulations of emergency situations) to determine whether responders are prepared to handle their assigned roles, and whether the planned procedures are effective. Exercises provide a means of validating the emergency plan and evaluating training programs used to prepare responders. Ranging in complexity from “tabletop” discussions to the actual deployment of significant resources and personnel (as if in response to an incident), exercises are the best way to find out

if the community is ready for a specific type of emergency. Potential problems with plans and procedures are often revealed in the exercise. These problems can then be corrected, leaving the jurisdiction better able to handle an actual emergency.

Problems in Past Incidents

When a hazardous materials incident plan either does not exist or is inadequate, a wide range of problems can occur. A lack of trained personnel or insufficient resources to handle the incident can lead to rapid escalation and unnecessary injuries. Unless detail-oriented preparation has included **all** emergency responders in plan development, unpleasant "surprises" can occur. Examples from recent incidents include the following:

- .Difficulties occurred in locating victims and in finding a hospital or reception center to receive them.
- .Reception centers were uncertain about who was to obtain food, medical supplies, and bedding for evacuees.
- .The Emergency Operating Center was inundated with so many citizen calls that communications among emergency organizations were paralyzed.
- .Medical personnel were unfamiliar with the treatment and effects of the hazardous material involved.
- .Organizational "turf" issues were not worked out in advance, and role conflicts impeded operations.

Often responders discover that their resources are inadequate to handle the incident, or that personnel were insufficiently trained in the specific role they must perform in the incident.

ROLES IN INCIDENT RESPONSE

Any chemical incident, or potential release, may draw firefighters, police, and emergency medical technicians to the scene. Response to a hazardous spill or fire is a complex process, requiring specially trained personnel and specialized equipment. A buddy system is needed to ensure personnel protection. A typical team would consist of approximately eight well-equipped and trained members. Of these, two individuals perform incident operations and rescue, two others serve as operations backup, two are the decontamination team, and there is one safety and one operations officer.

A truly serious incident would require representatives of all three levels of government (Federal, State, and local) to be present at the scene, with each level consisting of personnel from between five and 15 different agencies. Scientists familiar with chemical

properties would help develop a strategy for controlling the incident that is appropriate to the properties of the material. Environmental scientists would project the movement of materials and provide advice on minimizing the adverse impact on the environment. Local firefighters and specialized hazardous materials response teams (their capabilities enhanced through specialized training and additional resources brought in through interagency agreements) would manage the incident, as public safety personnel controlled crowds and traffic. The media, as well as lawyers and management representatives of the chemical company, would also be on hand. At a recent Florida incident, in fact, some 200 officials responded to the scene: this figure did **not** include the 21 workers handling the actual cleanup!

Given the large number of personnel at the site, roles and responsibilities must be clearly established in the contingency plan **before** the incident occurs. Individual Emergency Operations Plans (EOPs) will spell out these roles and responsibilities for each responding agency—but whether these responding agencies work smoothly together is largely a function of planning, and of how well the plan was communicated to key personnel.

Successful management of a hazardous materials incident falls upon the shoulders of the **Incident Commander**. In most States and jurisdictions, this individual is from the local fire service. The Incident Commander is tasked with directing all response and supporting operations in accordance with procedures specified in State or local ordinances and the local emergency operations plan. As additional officials with higher rank arrive on the scene, they may assume the Incident Commander role. A good plan will eliminate any confusion as to who the Incident Commander is at any point in the emergency.

The Local Role in Incident Response

In a hazardous materials incident (as in other types of emergencies) a successful outcome depends largely on **local** level preparedness. The amount of training response personnel have received, the extent to which responsible personnel were involved in planning, and other key factors in the planning process will become abundantly clear in an exercise or in an actual incident.

As first responders at the scene of a hazardous materials transportation spill, local firefighters and/or police typically have the lead responsibility for:

- Identifying the materials involved
- Determining the risk or hazard posed by the spill
- Calling for additional resources, if necessary, to monitor and contain the spill
- Isolating the scene, restricting or rerouting traffic, and conducting evacuation, if necessary
- Providing first aid, as needed

- Fighting the fire and protecting against explosions
- Keeping the public informed of the hazard that exists, the actions being taken, precautionary measures to take, and evacuation routes and destinations (if necessary)
- Taking overall scene management responsibilities

The first local forces who arrive on the scene usually do not have the specialized clothing they would need to rescue personnel in a chemical emergency without themselves becoming victims. Once a chemical emergency has been identified, specially equipped responders may arrive who are better able to take action. Incident responders who must come into direct contact with hazardous materials (particularly at an incident site) should be wearing appropriate personal protective equipment (PPE) and clothing. PPE should isolate individuals from the chemical, physical, and biological hazards they will encounter by protecting the respiratory system, skin, head and face (particularly the eyes), hands, feet, and body. A fully encapsulating suit is often required in incidents involving toxic substances. This type of suit is extremely bulky and cumbersome, and provides only half an hour of actual intervention time.

Your local emergency services department or communications center will usually notify appropriate State and Federal agencies, send and receive messages, and record and disseminate information. It may also assume the public information role from the firefighters and/or police. Individuals involved with these services may also coordinate requests for outside assistance and activate a mobile command post, along with a driver, if required at the scene.

The local public health department safeguards the public when food and/or water supplies may be affected or when dwellings may become contaminated. A chemist and toxicologist from this department may provide advice on toxicity and personnel protection, as well as recommendations to the scene manager regarding actions to be taken to reduce public health hazards. The public works department may assist in containment and cleanup, if they have adequate protective clothing and equipment.

State Role

In a major incident, a local government may have to call on State agencies for specialized resources and knowledge. Such an action could involve a number of State agencies; their potential roles are described below.

- The **Office of Emergency Services** arranges State and **Regional** mutual aid support and provides liaison with State agencies.
- The **Department of Transportation** assists and/or provides for identification and containment of all materials on State highways and freeways or unincorporated county roadways.



A fully encapsulating suit is generally the required dress for response personnel in incidents involving toxic substances. These suits are extremely bulky and cumbersome, and provide only half an hour of actual intervention time.

- The **State Police** or Highway **Patrol** provides general control of the perimeter of the incident (regulating traffic, for example) and will play other roles depending on State law and incident requirements.
- The **Department of Fish and Game** and **Regional Water Quality Control Boards** provide recommendations and guidelines when hazardous material spills are likely to contaminate streams and/or waterways, or would otherwise affect wildlife resources.
- **State OSHA personnel** often possess a large reservoir of technical knowledge useful to an Incident Commander in the areas of exposure to, protection from, and control of hazardous materials. In an incident in which employees have been injured due to exposure, or in a prolonged incident, State OSHA personnel may respond.
- The **State Department of Health** employs health scientists who can help assess the potential human impact of a toxic release.
- The **State Department of Environmental Protection** can predict the environmental impact of actions the Incident Commander is considering.
- The **State and local Fire Marsha/** have specific expertise relating to chemical behavior and State fire codes.

Federal Role

In the event of a major incident, the Federal government can also provide assistance to the local Incident Commander through the National Response Center (NRC). This center, staffed by the U.S. Coast Guard, operates a 24-hour hotline to receive and relay notices of major hazardous materials discharges to the appropriate authorities. When needed, the NRC can also make the expertise and other resources of Federal agencies available to the local government.

Other Sources of Information and Assistance

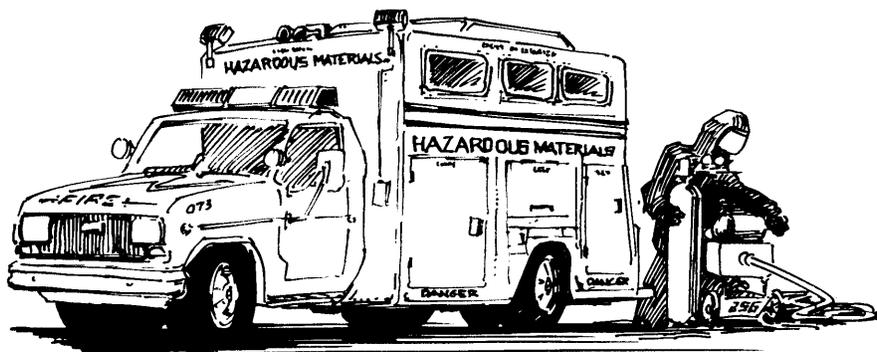
Other types of specialized assistance are available from governments, local industries, and from National organizations representing chemical manufacturers and transporters.

Hazardous Materials Response Teams (HMRTs). An HMRT is a specialized emergency response team formed to provide the particular skills, knowledge, and technical equipment needed to handle hazardous materials incidents. The chemical industry was the first provider of these services because it manufactured, transported, and used the products involved.

An HMRT is a major investment; whether the investment is warranted for a community depends on the nature of the risks it is facing as well as its resources. An HMRT would need specialized equipment, including expensive specialized protective clothing and detection instruments, containment vessel repair equipment, substance containment and recovery equipment, decontamination equipment, and instruments. The operating costs can be high—but so are the costs of a mismanaged incident. Often, local areas that cannot afford their own HMRTs pool their resources to form a more practical multijurisdictional team.

Regional Response Teams (RRT's).

Regional Response Teams may be assembled to provide advice and support for transportation or fixed facility incidents that surpass the capability of State and local governments. The RRT reports to an On-Scene Coordinator who directs the response in keeping with the local Incident Commander. RRTs are composed of representatives from Federal agencies and a representative from each State within a Federal Region. Overall responsibility for coordinating Federal emergency preparedness and planning on a nationwide basis rests with the National Response Team (NRT), which is composed of representatives from 14 Federal agencies with major environmental, transportation, emergency management, worker safety, and public health responsibilities.



Specialized groups of emergency response personnel, known as Hazardous Materials Response Teams (HMRTs), meet the need for the specific knowledge and technical equipment required to handle hazardous materials incidents.

The Federal resources available in a significant emergency are immense. How they are used, however, is determined by the Incident Commander, and regulated by State statutes and local ordinances.

CHEMTREC, CHLOREP, and NACA. The CHEMical Transportation Emergency Center, called CHEMTREC, was established by the Chemical Manufacturers Association in 1971 to provide information for responders to chemical or hazardous materials emergencies. CHEMTREC operates in two stages:

1. Upon receipt of the name of a specific chemical, CHEMTREC provides immediate advice on the nature of the product and steps to be taken in handling the early stages of an emergency involving that product.
2. CHEMTREC promptly contacts the shipper of the material involved to obtain more detailed information and appropriate follow-up, including on-scene assistance when feasible.

CHEMTREC'S operators can assist incident responders by providing information such as the physical properties of the chemical involved, appropriate protective clothing to be worn by response personnel, and general tactics to use with the various hazardous materials (e.g., certain hazardous materials-induced fires will need to be extinguished with water, while others should be smothered or covered with a special type of foam). CHEMTREC will not, however, tell the Incident Commander how to manage the incident.

Never call CHEMTREC unless a true emergency exists. It is important that telephone lines be open at all times for those who urgently need help. If you do call CHEMTREC, you will need to provide them with as much of the following information as is possible:

- Your name, and a number at which you can be called back
- The location of the problem
- The type of container involved
- The product, or type of product, involved
- The rail car or truck number
- Local conditions
- The shipper or manufacturer
- The intended receiver

The Chlorine Institute can provide specific technical assistance for chlorine emergencies. **CHLOREP**, the CHLORine Emergency Plan, provides telephone instruction to on-scene personnel in the United States and Canada, and, if necessary, can notify the nearest producer of chlorine and request that a trained team be dispatched.

The National Agricultural Chemicals Association (NACA), has identified a group of specialists designated as the Pesticides Safety Team (PST). The team provides advice for incidents involving pesticides and will dispatch a response team to the site if one is needed.

Local Industry. Local industries which use or generate hazardous materials can also be sources of assistance. In general, the larger the firm, the more likely that it will be able to provide assistance in an emergency. The following types of companies are likely to have the knowledge, equipment, or personnel to provide local-level assistance:

- **Chemical companies**, which often have the equipment and personnel to respond to chemical spills.
- **Oil refining** and storage facilities, which maybe able to assist at a spill of oil or gasoline.
- **Construction companies**, which can provide heavy equipment and operators when needed.

• **Transportation companies**, which can provide detailed information on the materials they carry, assist in evacuation, and may have trained personnel and specialized equipment.

• **Pollution cleanup contractors**, which have specialized equipment and trained personnel. Although a fee will be charged for the services provided, professional cleanup contractors are often the best (and quickest) source of advice and physical assistance at a spill.

Your local emergency operations plan should maintain a current list of contacts and telephone numbers for all potential sources of assistance. Compiling this information during an emergency can waste valuable time when the need for action is urgent.

The Public. Unlike many other emergencies, in which volunteer help is often welcome, in a hazardous materials emergency there is usually little that untrained members of the public can do. Citizens should **never** try to approach the command post in a hazardous materials emergency: any information you wish to offer should be given by telephone from a safe distance. Observe all posted exclusion zones, and listen for public announcements on the radio or other local information system.

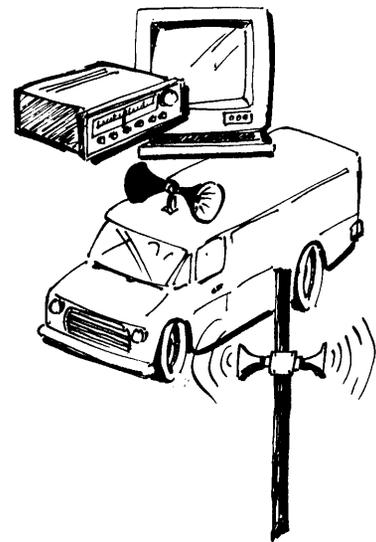
PROTECTING YOURSELF IN A TOXIC INCIDENT

If an accident involving hazardous materials occurs in your community, emergency services personnel will notify you as to what steps to take. Your best protection is to follow these directions, which are aimed at minimizing your exposure to the hazardous materials.

Public Warning and Notification Methods

Communities generally alert and notify the public as to emergency situations through one of the following methods:

- **Warning Sirens or Horns.** These audible warning devices are used to attract attention and alert citizens to an emergency situation. Different tones or tone patterns may have various meanings. These devices are **outdoor** warning systems, and may not be heard indoors or inside vehicles.
- **Emergency Broadcast System (EBS).** The radio and television Emergency Broadcast System can disseminate community emergency information, including where to go for additional information. This notification system requires individuals to be tuned into the radio or television at the time of the announcement.
- **"All-Call" Telephoning.** This notification method uses an automated system to ring up area telephones and provide a recorded message when telephones are answered. Obviously,



Communities use different methods to inform and direct the public in the event of an incident. In your community, which would most likely be used to notify you if an incident occurred that required you to evacuate or take other protective action ?

this type of notification works only for people who are within earshot of a telephone.

• **Announcements Over Cable Television.** In some communities, cable systems are hard-wired to enable emergency response forces to relay announcements over all cable television stations. Viewers may be alerted by a tone alert with a line of text across the bottom of their television set, an automatic cut-in with a picture and voice transmission from the emergency scene or a local agency, or a cut-in using voice communication only. As with the Emergency Broadcast System, this notification method is useful to people who are tuned in to a broadcast channel.

• **Residential Route-Alert.** In this method, motor vehicles equipped with public address systems travel predesignated routes to notify people of the emergency situation. This method may not be heard by persons inside buildings. An alternative is door-to-door knocking by officials on foot.



What You Should Do

After you have been alerted of a hazardous materials incident, you should await further information from emergency response personnel. Upon receiving this information, follow it carefully. Your primary objective is to keep your distance from the incident in order to minimize your chances of contamination.

If you are caught outdoors during a hazardous materials incident, it is best to stay upstream, uphill, and/or upwind. Move toward a crosswind, so the wind is blowing from either the right or the left rather than directly in your face or at your back.

If you are caught outside in an incident, try to stay **upstream, uphill, and upwind**. You want to stay upstream from toxic waste flowing in water, so it is not carried towards you. Many toxic vapors are heavier than air and will tend to settle in low areas; thus, you are usually safest uphill where the topography will provide some protection.

Wind will play a critical role in distributing the toxic material, so you want to stay **upwind**—i.e., in the opposite area from where the wind is spreading the toxic fumes. If you are already caught in a plume, however, move in a **crosswind** direction, so the wind is blowing from either the right or left and not into your face or at your back.

How far away from an incident should you go to be safe? The answer to this will depend on weather conditions, topography, and the characteristics of the chemical itself. A high wind can carry the toxic substance many miles from the spill. Hills can delay dispersal, while the opposite is true of open country. (Your LEPC can gain low-cost access to highly sophisticated computer software that can project how far a plume is likely to extend under specific incident conditions.) In general, however, you should go at **least** 10 city

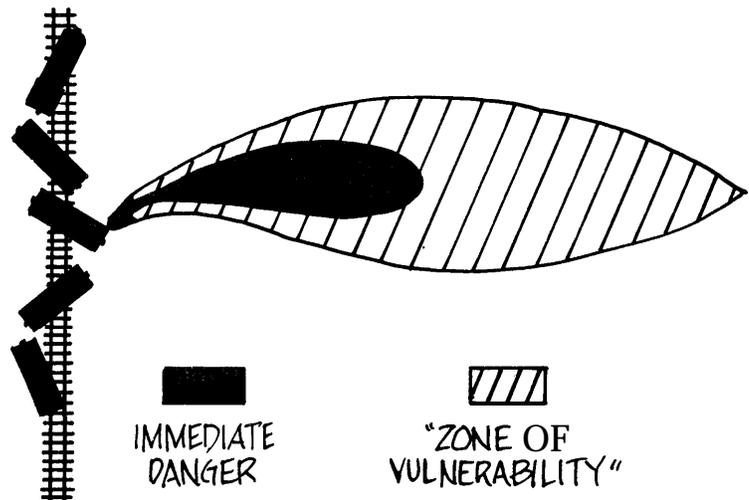
blocks (one-half mile) from the danger area; for many incidents, you will need to go much further.

Evacuation

A major hazardous materials incident could require an evacuation of a large area. When a burning rocket fuels plant blew up in Henderson, Nevada, thousands had to leave the area, and interstate highway traffic was deadlocked. An overturned propane truck on New York's Long Island kept 1,000 families from their homes for several days until the danger of explosion was over. At the peak of a fire at a plant where chlorine was stored, some 25,000 residents of Springfield, Massachusetts were evacuated.

If you are asked to evacuate because of a hazardous materials emergency, **do so immediately**. Your local radio station or television channels should give you precise directions. Before leaving your home or office, close your windows and shut all vents to minimize contamination. If time permits, place a sign on your door or front window to notify the Public Service Department that your building has been evacuated and no one remains inside. It is also a good idea to provide a telephone number where you can be reached.

In a major emergency, the Red Cross and other local volunteer organizations will establish temporary shelters for evacuated residents. These shelters most frequently are located in schools or other large public facilities. Stay tuned to your radio for updates on the situation, evacuation routes, and alternative routes for traffic. If you are handicapped or need special assistance in order to evacuate, call your local police. (If you do **not** need this assistance, do **not** call: keep the line open for those who do!)



In-Place Sheltering

In certain circumstances, it is safer to keep community residents indoors than to evacuate them. This option, known as **in-place sheltering**, is sometimes chosen by local authorities when evacuation may expose people to large doses of toxic chemicals. If you are sheltered in your own home, strictly follow all instructions given by the emergency forces. The following procedures are intended to reduce risk in most incidents where in-place sheltering is used:

- To reduce the amount of toxic vapors entering your home, seal entry routes as efficiently as possible. Close windows and doors, and seal drafty places with wet towels, blankets, or tape.

Your Local Emergency Planning Committee (LEPC) can gain access to highly sophisticated computer software that can project how far a plume will extend under specific incident conditions.

- Turn off all ventilation, including furnaces, air conditioners, vents, and fans.
- If dangerous vapors are entering the building, take shallow breaths through a cloth or towel. (The same procedure may offer some protection from smoke in a fire.) While use of a cloth may be of value, however, it is important to emphasize that it is strictly a defensive measure and can provide only minimal protection. It certainly does **not** enable the wearer to enter a toxic environment! Portrayal of daring rescues on television using handkerchiefs for protection are erroneous and misleading, and should **not** be imitated.
- Remain in protected areas of the house where toxic vapors are reduced, and be sure to take your radio with you.

Other Protective Measures

A hazardous materials incident offers opportunities for exposure by three primary routes discussed earlier in this manual: inhalation, absorption, and ingestion. The following guidance will help you minimize your exposure by these routes. This guidance is intended to supplement—not replace—information given by local emergency services personnel.

Minimizing the Inhalation Hazard. If you are in a motor vehicle, close off ventilation and shut your windows. As we have seen, a **minimal** amount of protection from contamination is provided by covering your mouth and nose with a cloth. The best protection is to **distance** yourself from the source: sightseeing at an incident of this type is an unnecessary risk to your health.

Minimizing the Risk of Skin Absorption. Many toxic materials can be easily absorbed by the skin. Since even a small amount of a chemical substance may be toxic, you should avoid contact with any spilled liquid material, mist in the air, or condensed solid chemical deposit. Keep your body fully covered—including gloves and socks—but remember that these measures are only minimally effective. Once you have left the area, you should fully disrobe, proceed through decontamination, and dress in fresh clothing.

Avoiding Ingestion of Toxic Substances. Toxic substances can be ingested if your food or water supply becomes contaminated. If you learn that you will be sheltered indoors, quickly fill up your bathtub with a supply of uncontaminated water and turn off the intake valve to your home. Do not eat any food that could have become contaminated in an incident.

Decontamination. A person or item that has been exposed to a hazardous material is **contaminated** and can contaminate other people or items (i.e., **cross-contamination**). For example, if you enter your car after being exposed to a toxic substance, you will contaminate your car.

Decontamination is the process of removing or neutralizing contaminants that have accumulated on people and equipment. At hazardous waste incidents, "clean" areas must be established and maintained and materials in contaminated areas be confined to specific "hot" zones. Response personnel who have had to enter the middle area—the contamination reduction zone—must later remove their clothing and equipment, shower in fresh water, be rinsed with neutralizing agents, re-shower, and change into clean clothing.

The specific procedure for decontamination will vary according to the chemical to which the individual was exposed. Certain items—e.g., leather and some plastic and rubber materials—absorb toxic substances so easily that they cannot be completely decontaminated; these items must be discarded.

Decontamination methods seek to:

- Physically remove contaminants,
- De-activate contaminants by chemical detoxification or disinfection/sterilization, or
- Remove contaminants through a combination of both physical and chemical methods.

The manufacturer of the substance can provide information on the appropriate decontamination method to follow. Basic information should be readily available on the substance's container.

If you believe you maybe contaminated and medical assistance is not immediately available, remove all of your clothing, shower thoroughly, don fresh loose warm clothing, and seek medical help. Advise **all** who come in contact with you that you may have been exposed to a toxic substance so they can take proper precautions. To avoid contaminating your home and others, place your exposed clothing in a nonpermeable container without allowing it to contact other materials, and arrange for proper disposal.

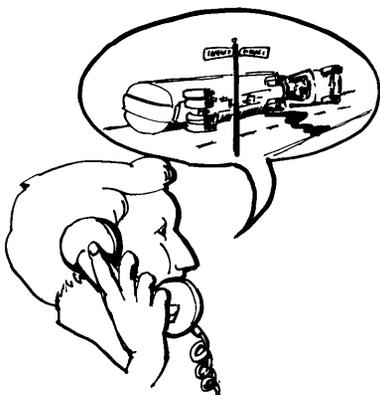
1. Wash down outer clothing (**unless the chemical is water-reactive**).
2. Remove clothing, working from the top down.
3. Wash down your entire body (**unless the chemical is water-reactive**).
4. Wrap up or dress in clean clothing.
5. Discard contaminated clothing in a well-secured plastic bag. Then, report to trained medical personnel at the earliest opportunity.

Reporting a Hazardous Materials Incident

If you witness a hazardous material accident, spill, or leak, call 911 or your local emergency notification number as soon as possible. In rare cases in which no local emergency forces appear to be available, you can contact the National Response Center to report



Once exposed to a toxic substance, clothing must be decontaminated or discarded prior to contact with human skin or other objects. Some materials, such as leather, absorb contaminants easily and must be discarded.



If you witness a hazardous materials accident, spill, or leak, call 911 or your local emergency notification number with precise information about the incident.

an emergency. Provide as much of the following information as possible:

- The chemical involved, if known
- Information on the substance's placard or label, if it is visible
- Precise location of the incident
- Size of the incident, in quantitative terms
- Direction in which the plume is moving
- Color of the smoke or spilled liquid
- Altitude and movement of the plume (i.e., is the plume rising or sinking?)
- Number of injuries
- For a transportation incident, a description of the vehicle involved (e.g., tanker or pickup truck) including any identifying marks, numbers, or placards

WHAT CITIZENS CAN DO TO ENHANCE LOCAL PREPAREDNESS

As a concerned citizen, the first thing you can do is find out how well—or poorly—your community is prepared for a hazardous materials incident.

You may find that your community does not even have an emergency plan in place for dealing with a hazardous materials incident. A 1988 survey by the National Response Team on the status of local preparedness programs discovered that even among those local jurisdictions with a full-time public safety agency, only one-third possess some form of planned response capabilities for hazardous materials incidents. Furthermore, of the relatively few communities that have emergency operations plans which include hazardous materials annexes or information, only a small fraction currently have plans considered acceptable under published NRT standards.

If there is no plan, or if the existing plan is ineffective, you should lobby for and/or assist in plan development. The following are some ways in which you can become involved:

- Make sure that an LEPC has been formed in your community, attend its meetings, and ensure that it truly represents your community. Volunteer to serve as a citizen representative to the LEPC.
- Make sure that the LEPC has obtained all the information it needs from local facilities to prepare a comprehensive emergency response plan.
- Review and comment on the emergency response plan, and inquire about its review status with the SERC and Regional Response Team (RRT).
- Ask for information (from your LEPC or SERC) about chemical

hazards, inventories, and releases in your community. Ask your LEPC what local facilities are doing to reduce chemical hazards.

- Use the National Toxic Release Inventory database to obtain information on routine releases of toxic chemicals in your community. This information should also be available from your LEPC.

Another way to enhance local preparedness is to help educate other residents. Write articles for your local newspaper (or interest someone who can) about the potential for injury and death to people and great harm to the environment that can be caused by hazardous materials. Also, offer to speak to community groups, or locate effective speakers who can help the community understand the issues and correct local problems.

SUMMARY

Protecting a community from the consequences of a hazardous materials accident requires teamwork that does not happen automatically. Responders to an incident must be working in a framework that clearly specifies their respective responsibilities. This means agreeing together on how they would locate and direct the resources—both personnel and equipment—a hazardous materials incident might require, documenting their shared understanding in a plan, training responders to fulfill their responsibilities, and conducting periodic tests to be sure the plan is realistic and responders are ready to carry it out.

In the event of major incident, local responders could access additional expertise through State and Federal agencies. Local citizens, however, can do little to assist in most such incidents. Rather than trying to volunteer to assist, citizens should be aware of what public information systems would be used and tune in to them for instructions. Citizens should also do what they can to minimize their exposure to toxic substances; in some cases, staying indoors with tightly closed windows may be healthier than evacuating through toxic vapors. The responding agencies will have access to information about the chemical, its behavior, weather conditions, and other data essential to make the best decision about protecting lives: therefore, it is of primary importance to follow their directions. ■

IS YOUR COMMUNITY PREPARED FOR A HAZARDOUS MATERIALS EMERGENCY?

Or, better yet, is your community successfully working to prevent such an occurrence? The following is only a sample of possible hazardous materials preparedness questions, but the answers should give you an idea of whether your community is thinking ahead or waiting for a serious incident to get its attention. A large number of "yes" answers area positive sign. Too many "no" answers suggest public inquiries may be needed to increase the awareness of the potential costs of hazardous materials accidents.

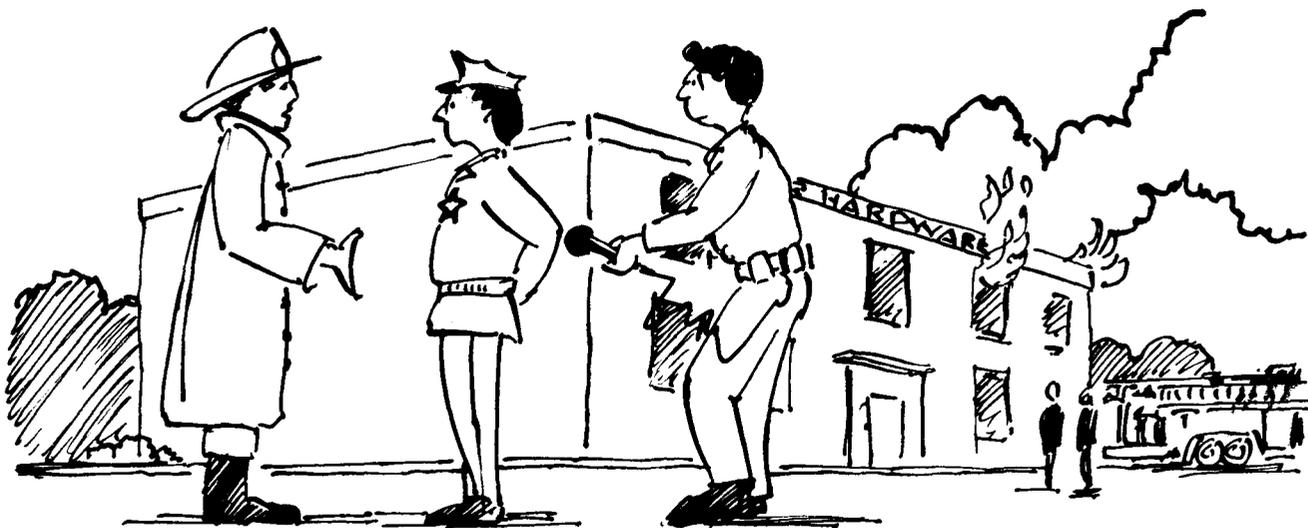
1. Was there formal training on HAZ MAT operational and response procedures in your community during the past year?
Yes _ No _ Don't Know _
2. Was there a HAZ MAT exercise in your community during the past year?
Yes _ No _ Don't Know _
3. Does your community have, in place, written mutual aid agreements with other jurisdictions or with industry?
Yes _ No _ Don't Know _
4. Does your community have an inspection program that deals with the transportation, on-site storage, and processing of hazardous materials?
Yes _ No _ Don't Know _
5. Has discharger liability been formally defined in your State?
Yes _ No _ Don't Know _
6. Are there established hazardous materials transportation regulations (in addition to the Federal standards) that affect your community?
Yes _ No _ Don't Know _
7. Are there established waste transportation regulations (in addition to the Federal standards) that affect your community?
Yes _ No _ Don't Know _
8. Are rails in the area aligned and leveled at least once a year?
Yes _ No _ Don't Know _
9. Are train speeds constantly monitored and violators prosecuted?
Yes _ No Don't Know _
10. Has the police department been enforcing the restricting of truckers to specific routes?
Yes _ No _ Don't Know _

11. Have sewer shut-off points been identified for the retainment of hazardous materials that may leak into sanitary and storm sewers?

Yes _ No _ Don't Know_

12. Do all industries handling hazardous materials in the area have individual in-plant emergency plans which are compatible with a general community plan?

Yes _ No _ Don't Know____



HAZ MAT TEASER
(answers on page A-2)

A fire was reported at a rural hardware store on the county line during the early morning hours of July 4th. The responding community fire department quickly realized that it had a major incident on its hands. Birds flying near the area were falling from the sky, and cows in nearby fields were having difficulty walking.

The firefighters tried to extinguish the blaze, but were driven back by several explosions that shot burning debris in all directions.

When the owner of the hardware store arrived on the scene, he informed the firefighters that his store contained large quantities of pesticides and a supply of fireworks for the July 4th celebration.

The fire chief told the police chief to evacuate the area, but could not say how large an area needed to be evacuated. The police chief stated that he did not have sufficient manpower to evacuate the area, and was unable to communicate with the sheriff's department to request assistance due to the incompatible radio frequencies used by the two forces. The police chief also felt that he did not have the authority to order people to leave, and suggested that the Town Council meet to declare an emergency. The sheriff arrived at the site and declared that he was in complete control of the incident and all operations, which greatly upset the fire chief and police chief.

Members of the fire department began knocking on doors to evacuate residents, but only went as far as the county line, which was the boundary of their fire district. Some residents were told to go to the fire station for shelter, while others were told to report to a nearby church. A radio station covering the story instructed listeners living within five miles of the hardware store to evacuate to the local high school. The Red Cross and the Salvation Army learned about the incident when the police department called them to request coffee and donuts at the scene of the fire.

Residents were scattered throughout the area while the fire burned itself out. Concern was raised over pesticide residues that may have traveled downwind from the fire, but no one knew who to call for technical advice and air testing. Attempts were made to contact the Mayor to take control of the situation, but he had gone out of town for the holiday and could not be reached.

CHECK YOUR MEMORY

(answers on page A-4)

1. What is the **minimum** number of persons needed to manage a hazardous materials incident safely?
 - a. 3
 - b. 5
 - c. 35
 - d. 8

2. The most critical element in avoiding confusion and conflict among responders at a hazardous materials incident is:
 - a. A good plan which all responders know and use
 - b. How much money the community spends preparing for an incident
 - c. The number of people who respond
 - d. The type of chemical involved

3. The person in charge of managing responding forces at a hazardous materials incident is:
 - a. The Incident Commander (usually from the local fire service)
 - b. The governor
 - c. The mayor
 - d. The EPA representative on the scene

4. Which of the following should you do if you are in your car and learn that there is an accident involving a volatile toxic substance **ahead** of you on the road?
 - a. Get in close to offer help
 - b. Walk to the scene to get more information
 - c. Drive as close as you can to evaluate the performance of the responders
 - d. Follow instructions and remain clear of the release plume

5. A person whose skin has been in contact with a toxic substance should be:
 - a. Decontaminated
 - b. Fed
 - c. Massaged
 - d. Given mouth-to-mouth resuscitation

6. Which of the following is **not** typically represented on a Local Emergency Planning Committee?
 - a. The governor
 - b. The police department
 - c. The fire service
 - d. The public works department

7. To find out **more** about your local plan for accidents at chemical plants and other fixed sites, your first contact should be:
 - a. The Department of Transportation
 - b. The LEPC
 - c. The Chemical Manufacturers Association
 - d. The Sierra Club