5. Hazardous Materials Planning Elements

5.1 Introduction

This chapter presents and discusses a comprehensive list of planning elements related to hazardous materials incidents. Communities that are developing a hazardous materials appendix/plan need to review these elements thoroughly. Communities that are revising an existing appendix/plan need to evaluate their present appendix/plan and identify what elements need to be added, deleted, or amended in order to deal with the special problems associated with the accidental spill or release of hazardous materials.

Title III of SARA requires each emergency plan to include at least each of the following. The appropriate section of the plan as indicated in Exhibit 4 is shown in parentheses after each required Title III plan element.

(1) Identification of facilities subject to the Title III requirements that are within the emergency planning district; identification of routes likely to be used for the transportation of substances on the list of extremely hazardous substances; and identification of additional facilities contributing or subjected to additional risk due to their proximity to facilities, such as hospitals or natural gas facilities. (Exhibit 4, Sections A.6 and G)

(2) Methods and procedures to be followed by facility owners and operators and local emergency and medical personnel to respond to any releases of such substances. (Exhibit 4, Section C)

(3) Designation of a community emergency coordinator and facility emergency coordinators, who shall make determinations necessary to implement the plan. (Exhibit 4, Section A.7b)

(4) Procedures providing reliable, effective, and timely notification by the facility emergency coordinators and the community emergency coordinator to persons designated in the emergency plan, and to the public, that a release has occurred. (Exhibit 4, Sections C.1 and C.4)

(5) Methods for determining the occurrence of a release, and the area or population likely to be affected by such release. (Exhibit 4, Sections A.6 and G)

(6) A description of emergency equipment and facilities in the community and at each facility in the community subject to Title III requirements, and an identification of the persons responsible for such equipment and facilities. (Exhibit 4, Section C.6)

(7) Evacuation plans, including provisions for a precautionary evacuation and alternative traffic routes. (Exhibit 4, Section C.9b)

(8) Training programs, including schedules for training of local emergency response and medical personnel. (Exhibit 4, Sections C.6 and F.1)

(9) Methods and schedules for exercising the emergency plan. (Exhibit 4, Section F.1)

The various planning elements are discussed here in the same order as they appear in the sample outline for a hazardous materials emergency plan in Chapter 4. Community planners might choose, however, to order these planning elements differently in a multi-hazard plan following the model of CPG 1-8.

5.2 Discussion of Planning Elements

The remainder of this chapter describes in detail what sorts of information could be included in each element of the emergency plan. These issues need to be addressed in the planning process. In some cases, they will be adequately covered in SOPs and will not need to be included in the emergency plan.

Planning Element A: Introduction

Planning Element A.1: Incident Information Summary

☐ Develop a format for recording essential information about the incident:

- Date and time
- Name of person receiving call
- Name and telephone number of on-scene contact
- Location
- Nearby populations
- Nature (e.g., leak, explosion, spill, fire, derailment)
- Time of release
- Possible health effects/medical emergency information
- Number of dead or injured; where dead/injured are taken
- Name of material(s) released; if known
  - o Manifest/shipping invoice/billing label
  - o Shipper/manufacturer identification
  - o Container type (e.g., truck, rail car, pipeline, drum)
  - o Railcar/truck 4-digit identification numbers
  - o Placard/label information
- Characteristics of material (e.g., color, smell, physical effects), only if readily detectable

- Present physical state of the material (i.e., gas, liquid, solid)
- Total amount of material that may be released
- Other hazardous materials in area
- Amount of material released so far/duration of release
- Whether significant amounts of the material appear to be entering the atmosphere, nearby water, storm drains, or soil
- Direction, height, color, odor of any vapor clouds or plumes
- Weather conditions (wind direction and speed)
- Local terrain conditions
- Personnel at the scene

Comment: Initial information is critical. Answers to some of these questions may be unknown by the caller, but it is important to gather as much information as possible very quickly in order to facilitate decisions on public notification and evacuation. Some questions will apply to fixed facility incidents and others will apply only to transportation incidents. Some questions will apply specifically to air releases, while other questions will gather information about spills onto the ground or into water. **Identification numbers, shipping manifests, and placard information are essential** to identify any hazardous materials involved in transportation incidents, and to take initial precautionary and containment steps. First responders should use DOT's *Emergency Response Guidebook* to help identify hazardous materials. Additional information about the identity and characteristics of chemicals is available by calling CHEMTREC (800-424-9300). CHEMTREC and the Hazard Information Transmission (HIT) program are described in Appendix C.

This emergency response notification section should be:

BRIEF -- never more than one page in length.

EASILY ACCESSIBLE -- *located on the cover or first* page of the plan. It should also be repeated at least once inside the plan, in case the cover is torn off.

SIMPLE -- reporting information and emergency telephone numbers should be kept to a minimum.

Copies of the emergency response notification form could be provided to potential dischargers to familiarize them with information needed at the time of an incident.

Planning Element A.2: Promulgation Document

☐ Statement of plan authority

Comment: A letter, signed by the community's chief executive, should indicate legal authority and responsibility for putting the plan into action. To the extent that the execution of this plan involves various private and public-sector organizations, it may be appropriate to include here letters of agreement signed by officials of these organizations.

Planning Element A.3: Legal Authority and Responsibility for Responding

☐ Authorizing legislation and regulations

- Federal (e.g., CERCLA, SARA, Clean Water Act, National Contingency Plan, and Disaster Relief Act)
- State
- Regional
- Local

☐ Mandated agency responsibilities

☐ Letters of agreement

Comment: If there are applicable laws regarding planning for response to hazardous materials releases, list them here. Analyze the basic authority of participating agencies and summarize the results here. The community may choose to enact legislation in support of its plan. Be sure to identify any agencies required to respond to particular emergencies.

Planning Element A.4: Table of Contents

Comment: All sections of the plan should be listed here and clearly labeled with a tab for easy access.

Planning Element A.5: Abbreviations and Definitions

Comment: Frequently used abbreviations, acronyms, and definitions should be gathered here for easy reference.

Planning Element A.6: Assumptions/Planning Factors

☐ Geography

- Sensitive environmental areas
- Land use (actual and potential, in accordance with local development codes)
- Water supplies
- Public transportation network (roads, trains, buses)
- Population density
- Particularly sensitive institutions (e.g., schools, hospitals, homes for the aged)

☐ Climate/weather statistics

☐ Time variables (e.g., rush hour, vacation season)

☐ Particular characteristics of each facility and the transportation routes for which the plan is intended

- On-site details
- Neighboring population
- Surrounding terrain
- Known impediments (tunnels, bridges)
- Other areas at risk

☐ Assumptions

Comment: This section is a summary of precisely what local conditions make an emergency plan necessary. Information for this section will be derived from the hazards identification and analysis. Appropiate maps should be included in this section. Maps should show: water intake, enviromentally sensitive areas, major chemical manufacturing or storage facilities, population centers, and the location of response resources.

Assumptions are the advance judgments concerning what would happen in the case of an accidental spill or release. For example, planners might assume that a certain percentage of local residents on their own will evacuate the area along routes other than specified evacuation routes.

Planning Element A.7: Concept of Operations

Planning Element A.7a: Governing Principles

Comment: The plan should include brief statements of precisely what is expected to be accomplished if an incident should occur.

Planning Element A.7b: Organizational Roles and Responsibilities

- ☐ Municipal government
  - Chief elected official
  - Emergency management director
  - Community emergency coordinator (Title III of SARA)
  - Communications personnel
  - Fire service
  - Law enforcement
  - Public health agency
  - Environmental agency
  - Public works
- ☐ County government
- ☐ Officials of fixed facilities and/or transportation companies
  - Facility emergency coordinators (Title III of SARA)
- ☐ Nearby municipal and county governments
- ☐ Indian tribes within or nearby the affected jurisdiction
- ☐ State government
  - Environmental protection agency
  - Emergency management agency
  - Public health agency
  - Transportation organization
  - Public safety organization
- ☐ Federal government
  - EPA
  - FEMA
  - DOT
  - HHS/ATSDR
  - USCG
  - DOL/OSHA

- DOD
- DOE
- RRT

☐ Predetermined arrangements

☐ How to use outside resources

- Response capabilities
- Procedures for using outside resources

Comment: This section lists all those organizations and officials who are responsible for planning and/or executing the **pre-response** (planning and prevention), **response** (implementing the plan during an incident), **and post-response** (cleanup and restoration) **activities** to a hazardous materials incident. **One organization should be given command and control** responsibility for each of these three phases of the emergency response. The role of each organization/official should be clearly described.The plan should clearly designate who is in charge and should anticipate the potential involvement of State and Federal agencies and other response organizations. (Note: The above list of organizations and officials is not meant to be complete. Each community will need to identify all the organizations/officials who are involved in the local planning and response process.)

This section of the plan should contain descriptions and information on the RRTs and the predesignated Federal OSC for the area covered by the plan. (See Section 1.4.1 of this guidance.) Because of their distant location, it is often difficult for such organizations to reach a scene quickly; planners should determine in advance approximately how much time would elapse before the Federal OSC could arrive at the scene.

This section should also indicate where other disaster assistance can be obtained from Federal, State, or Regional sources. Pre-arrangements can be made with higher-level government agencies, bordering political regions, and chemical plants.

Major hazardous materials releases may overwhelm even the best prepared community, and an incident may even cross jurisdictional boundaries. Cooperative arrangements are an efficient means of obtaining the additional personnel, equipment, and materials that are needed in an emergency by reducing expenditures for maintaining extra or duplicative resources. Any coordination with outside agencies should be formalized through mutual aid and Good Samaritan agreements or memoranda of understanding specifying delegations of authority, responsibility, and duties. These formal agreements can be included in the plan if desired.

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Planning Element A.7c: Relationship to Other Plans

Comment: A major task of the planning group is to integrate planning for hazardous materials incidents into already existing plans. In larger communities, it is probable that several emergency plans have been prepared. **It is essential to coordinate these plans.** When more than one plan is put into action simultaneously, there is a real potential for confusion among response personnel unless the plans are carefully coordinated. All emergency plans (including facility plans and hospital plans) that might be employed in the event of an accidental spill or release should be listed in this section. The community plan should include the methods and procedures to be followed by facility owners and operators and local emergency response personnel to respond to any releases of such substances. The NCP, the Federal Regional contingency plan, any OSC plan for the area, and any State plan should be referenced. **Of special importance are all local emergency plans.**

Even where formal plans do not exist, various jurisdictions often have preparedness capabilities. Planners should seek information about informal agreements involving cities, counties, States, and countries.

Planning Element A.8: Instructions on Plan Use

Planning Element A.8a: Purpose

Comment: This should be a clear and succinct statement of when and how the plan is meant to be used. It is appropriate to list those facilities and transportation routes explicitly considered in the plan.

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Plan Section A.8b: Plan Distribution

☐ List of organizations/persons receiving plan

Comment: The entire plan should be available to the public; it can be stored at a library, the local emergency management agency, or some other public place. The plan should be distributed to all persons responsible for response operations. The plan distribution list should account for all organizations receiving such copies of the plan. This information is essential when determining who should be sent revisions and updates to the plan.

Planning Element A.9: Record of Amendments

☐ Change record sheet

- Date of change
- Recording signature
- Page numbers of changes made

Comment: Maintaining an up-to-date version of a plan is of prime importance. When corrections, additions, or changes are made, they should be recorded in a simple bookkeeping style so that all plan users will be aware that they are using a current plan.

All that is necessary for this page is a set of columns indicating date of change, the signature of the person making the change, and the page number for identifying each change made.

Planning Element B: Emergency Assistance Telephone Roster

☐ List of telephone numbers for:

- Participating agencies
- Technical and response personnel
- CHEMTREC
- Public and private sector support groups
- National Response Center

Comment: An accurate and up-to-date emergency telephone roster is an essential item. The name of a contact person (and alternate) and the telephone number should be listed. Briefly indicate the types of expertise, services, or equipment that each agency or group can provide. Indicate the times of day when the number will be answered; note all 24-hour telephone numbers. All phone numbers and names of personnel should be verified at least every six months. When alternate numbers are available, these should be listed. This section of the plan should stand alone so that copies can be carried by emergency response people and others. Examples of organizations for possible inclusion in a telephone roster are as follows:

Telephone Roster

Community Assistance

- Police
- Fire
- Emergency Management Agency
- Public Health Department
- Environmental Protection Agency
- Department of Transportation
- Public Works
- Water Supply
- Sanitation
- Port Authority
- Transit Authority
- Rescue Squad
- Ambulance
- Hospitals
- Utilities:
  - Gas
  - Phone
  - Electricity
- Community Officials
  - Mayor
  - City Manager
- County Executive
- Councils of Government

Volunteer Groups

- Red Cross
- Salvation Army
- Church Groups
- Ham Radio Operators
- Off-Road Vehicle Clubs

Response Personnel

- Incident Commander
- Agency Coordinators
- Response Team Members

Bordering Political Regions

- Municipalities
- Counties
- States
- Countries
- River Basin Authorities
- Irrigation Districts
- Interstate Compacts
- Regional Authorities
- Bordering International Authorities
- Sanitation Authorities/Commissions

Industry

- Transporters
- Chemical Producers/Consumers
- Spill Cooperatives
- Spill Response Teams

Media

- Television
- Newspaper
- Radio

State Assistance

- State Emergency Response Commission (Title III of SARA)
- State Environmental Protection Agency
- Emergency Management Agency
- Department of Transportation
- Police
- Public Health Department
- Department of Agriculture

Federal Assistance (Consult Regional offices listed in Appendix F for appropriate telephone numbers.)

- Federal On-Scene Coordinator
- U.S. Department of Transportation
- U.S. Coast Guard
- U.S. Environmental Protection Agency

Federal Emergency Management Agency	24 hours	202-646-2400
U.S. Department of Agriculture		
Occupational Safety and Health Administration		
Agency for Toxic Substances and Disease Registry	24 hours	404-452-4100
National Response Center	24 hours	800-424-8802
in Washington,	DC area	202-426-2675
	or	202-267-2675
U.S. Army, Navy, Air Force		
Bomb Disposal and/or Explosive		
Ordnance Team, U.S. Army		
Nuclear Regulatory Commission	24 hours	301-951-0550
U.S. Department of Energy		
Radiological Assistance	24 hours	202-586-8100
U.S. Department of the Treasury		
Bureau of Alcohol, Tobacco, and Firearms		
Other Emergency Assistance		
CHEMTREC	24 hours	800-424-9300
CHEMNET	24 hours	800-424-9300
CHLOREP	24 hours	800-424-9300
NACA Pesticide Safety Team	24 hours	800-424-9300
Association of American Railroads/ Bureau of Explosives	24 hours	202-639-2222
Poison Control Center		
Cleanup Contractor		

Planning Element C: Response Functions

Comment: Each function should be clearly marked with a tab so that it can be located quickly. When revising and updating a plan, communities might decide to add, delete, or combine individual functions.

Each response "function" usually includes several response activities. Some communities prepare a matrix that lists all response agencies down the left side of the page and all response activities across the top of the page. Planners can then easily determine which response activities need inter-agency coordination and which, if any, activities are not adequately provided for in the plan.

Function 1: Initial Notification of Response Agencies

- ☐ 24-hour emergency response hotline telephone numbers
  - Local number to notify area public officials and response personnel
  - Number to notify State authorities
  - **National Response Center** (800-424-8802; 202-426-2675 or 202-267-2675 in Washington, DC area)
- ☐ Other agencies (with telephone numbers) to notify immediately (e.g., hospitals, health department, Red Cross)

Comment: The local 24-hour emergency response hotline should be called first and therefore should have a prominent place in the plan. Provision should be made for notifying nearby municipalities and counties that could be affected by a vapor cloud or liquid plumes in a water supply.

Normally, the organization that operates the emergency response hotline will inform other emergency service organizations (e.g., health department, hospitals, Red Cross) once the initial notification is made. The plan should provide a method for notifying all appropriate local, State, and Federal officials and agencies, depending upon the severity of the incident. To ensure that the appropriate Federal On-Scene Coordinator (OSC) is notified of a spill or release, the NRC operated by the U.S. Coast Guard should be included in the notification listing. CERCLA requires that the NRC be notified by the responsible party of releases of many hazardous materials in compliance with the reportable quantity (RQ) provisions. The NRC telephone number is 800-424-8802 (202-426-2675 or 202-267-2675 in the Washington, DC, area). If there is an emergency notification number at the State or Regional level, it should be called before the NRC, and then a follow-up call made to the NRC as soon as practicable.

The plan should indicate how volunteer and off-duty personnel will be summoned. Similarly, there should be a method to notify special facilities (e.g., school districts, private schools, nursing homes, day care centers, industries, detention centers), according to the severity of the incident.

Function 2: Direction and Control

- ☐ Name of on-scene authority
- ☐ Chain of command (illustrated in a block diagram)
- ☐ Criteria for activating emergency operating center
- ☐ Method for establishing on-scene command post and communications network for response team(s)
- ☐ Method for activating emergency response teams
- ☐ List of priorities for response actions
- ☐ Levels of response based on incident severity

Comment: Response to a hazardous materials spill or release will involve many participants: police, firefighters, facility personnel, health personnel, and others. It is also possible to have more than one organization perform the same service; for example, local police, the county sheriff and deputies, as well as the highway patrol may respond to perform police functions. Because speed of response is so important, coordination is needed among the various agencies providing the same service. It is essential to identify (by title or position) the one individual responsible for each participating organization, and the one individual responsible for each major function and service. The plan might require that the responsible person establish an Incident Command System (ICS).

Work out, in advance, the following:

(1) Who will be in charge (lead organization)

(2) What will be the chain of command

(3) Who will activate the emergency operating center, if required

(4) Who will maintain the on-scene command post and keep it secure

(5) Who will have advisory roles (and what their precise roles are)

(6) Who will make the technical recommendations on response actions to the lead agency

(7) Who (if anyone) will have veto power

(8) Who is responsible for requesting assistance from outside the community

This chain of command should be clearly illustrated in a block diagram.

Response action checklists are a way of condensing much useful information. They are helpful for a quick assessment of the response operation. If checklists are used, they should be prepared in sufficient detail to ensure that all crucial activities are included.

Planners should consider whether to have categories of response actions based on severity. The severity of an incident influences decisions on the level (or degree) of response to be made. This will determine how much equipment and how many personnel will be called, the extent of evacuation, and other factors.

The following chart summarizes who and what are involved in three typical emergency conditions. Information about the three response levels should be provided to special facilities (e.g., school districts, private schools, day care centers, hospitals, nursing homes, industries, detention centers).

Response Level	Description	Contact:
I. Potential Emergency Condition	An incident or threat of a release which can be controlled by the first response agencies and does not require evacuation of other than the involved structure or the immediate outdoor area. The incident is confined to a small area and does not pose an immediate threat to life or property.	Fire Department Emergency Medical Services Police Department Partial EOC Staff Public Information Office CHEMTREC National Response Center
II. Limited Emergency Condition	An incident involving a greater hazard or larger area which poses a potential threat to life or property and which may require a limited evacuation of the surrounding area.	All Agencies in Level I HAZMAT Teams EOC Staff Public Works Department Health Department Red Cross County Emergency Management Agency State Police Public Utilities
III. Full Emergency Condition	An incident involving a severe hazard or a large area which poses an extreme threat to life and property and will probably require a large scale evacuation, or an incident requiring the expertise or resources of county, State, Federal, or private agencies/ organizations.	All Level I and II Agencies plus the following as needed: Mutual Aid Fire, Police. Emergency Medical State Emergency Management Agency State Department of Environmental Resources State Department of Health EPA USCG ATSDR FEMA OSC/RRT

Function 3: Communications (among Responders)

☐ Any form(s) of exchanging information or ideas for emergency response with other entities, either internal or external to the existing organizational structure.

Comment: This aspect of coordination merits special consideration. Different response organizations typically use different radio frequencies. Therefore, specific provision must be made for accurate and efficient communication among all the various organizations during the response itself. Several States have applied for one "on-scene" command radio frequency that all communities can use. At a minimum, it may be beneficial to establish radio networks that will allow for communication among those performing similar functions. The plan might specify who should be given a radio unit, and who is allowed to speak on the radio. In order to avoid possible explosion/fire hazards, all communications equipment (including walkie-talkies) should be intrinsically safe.

Function 4: Warning Systems and Emergency Public Notification

☐ Method for alerting the public

- Title and telephone number of person responsible for alerting the public *as soon as word of the incident is received*
- List of essential data to be passed on (e.g., health hazards, precautions for personal protection, evacuation routes and shelters, hospitals to be used)

Comment: This section should contain precise information on how sirens or other signals will be used to alert the public in case of an emergency. This should include information on what the different signals mean, how to coordinate the use of sirens, and the geographic area covered by each siren. (If possible, a back-up procedure should be identified.) While a siren alerts those who hear it, an emergency broadcast is necessary to provide detailed information about the emergency and what people should do.

Sample Emergency Broadcast System messages should be prepared with blank spaces that can be filled in with precise information about the accident. One sample message should provide fundamental information about the incident and urge citizens to remain calm and await further information and instructions. Another sample message should be for an evacuation. Another sample message should describe any necessary school evacuations so that parents will know where their children are. Another sample message should be prepared to tell citizens to take shelter and inform them of other precautions they may take to protect themselves. The message should clearly identify those areas in which protective actions are recommended, using familiar boundaries. Messages might be developed in languages other than English, if customarily spoken in the area.

This section could be of urgent significance. When life-threatening materials are released, speed of response is crucial. It is not enough to have planned for alerting the community; one organization must be assigned the responsi-

bility of alerting the public as soon as word of the accidental release is received. Delay in alerting the public can lead to the loss of life. In addition to sirens and the Emergency Broadcast System, it may be necessary to use mobile public address systems and/or house-by-house contacts. In this case, adequate protection must be provided for persons entering the area to provide such help.

Function 5: Public Information/Community Relations

- ☐ Method to educate the public for possible emergencies
- ☐ Method for keeping the public informed
  - Provision for one person to serve as liaison to the public
  - List of radio and T.V. contacts

Comment: Many communities develop a public information program to educate citizens about safety procedures during an incident. This program could include pamphlets; newspaper stories; periodic radio and television announcements; and programs for schools, hospitals, and homes for the aged.

It is important to provide accurate information to the public in order to prevent panic. Some citizens simply want to know what is happening. Other citizens may need to be prepared for possible evacuation or they may need to know what they can do immediately to protect themselves. Because information will be needed quickly, radio and television are much more important than newspapers in most hazardous materials releases. In less urgent cases, newspaper articles can provide detailed information to enhance public understanding of accidental spills and procedures for containment and cleanup. **One person should be identified to serve as spokesperson.** It is strongly recommended that the individual identified have training and experience in public information, community relations, and/or media relations. The spokesperson can identify for the media individuals who have specialized knowledge about the event. The chain of command should include this spokesperson. Other members of the response team should be trained to direct all communications and public relations issues to this one person.

Function 6: Resource Management

- ☐ List of personnel needed for emergency response
- ☐ Training programs, including schedules for training of local emergency response and medical personnel
- ☐ List of vehicles needed for emergency response
- ☐ List of equipment (both heavy equipment and personal protective equipment) needed for emergency response

Comment: This section should list the resources that will be needed, and where the equipment and vehicles are located or can be obtained. A major task in the planning process is to identify what resources are already available and what must still be provided. For information on the selection of protective equipment, consult the *Occupational Safety and Health Guidance Manual for Hazardous Waste Site* Activities prepared by NIOSH, OSHA, USCG, and EPA; and the EPA/Los Alamos "Guidelines for the Selection of Chemical Protective Clothing" distributed by the American Conference of Governmental Industrial Hygienists (Building B-7, 6500 Glynway Ave., Cincinnati, OH 45211).

This section should also address funding for response equipment and personnel. Many localities are initially overwhelmed by the prospect of providing ample funding for hazardous materials response activities. In large localities, each response agency is usually responsible for providing and maintaining certain equipment and personnel; in such cases, these individual agencies must devise funding methods, sources, and accounting procedures. In smaller localities with limited resources, officials frequently develop cooperative agreements with other jurisdictions and/or private industries. Some communities stipulate in law that the party responsible for an incident should ultimately pay the cost of handling it.

For a more detailed discussion of response training, consult Chapter 6 of this guide.

Function 7: Health and Medical

- ☐ Provisions for ambulance service
- ☐ Provisions for medical treatment

Comment: This section should indicate how medical personnel and emergency medical services can be summoned. It may be appropriate to establish mutual aid agreements with nearby communities to provide backup emergency medical personnel and equipment. The community should determine a policy (e.g., triage) for establishing priorities for the use of medical resources during an emergency. Medical personnel must be made aware of significant chemical hazards in the community in order to train properly and prepare for possible incidents. Emergency medical teams and hospital personnel must be trained in proper methods for decontaminating and treating persons exposed to hazardous chemicals. Planners should include mental health specialists as part of the team assisting victims of serious incidents. Protective action recommendations for sanitation, water supplies, recovery, and reentry should be addressed in this section.

Function 8: Response Personnel Safety

- ☐ Standard operating procedure for entering and leaving sites
- ☐ Accountability for personnel entering and leaving the sites

- ☐ Decontamination procedures
- ☐ Recommended safety and health equipment
- ☐ Personal safety precautions

Comment: Care must be taken to choose equipment that protects the worker from the hazard present at the site without unnecessarily restricting the capacities of the worker. Although the emphasis in equipment choices is commonly focused on protecting the worker from the risks presented by the hazardous material, impaired vision, restricted movements, or excessive heat can put the worker at equal risk. After taking these factors into account, the planner should list the equipment appropriate to various degrees of hazard using the EPA Levels of Protection (A, B, C, and D). The list should include: the type of respirator (e.g., self-contained breathing apparatus, supplied air respirator, or air purifying respirator) if needed; the type of clothing that must be worn; and the equipment needed to protect the head, eyes, face, ears, hands, arms, and feet. This list can then be used as a base reference for emergency response. The specific equipment used at a given site will vary according to the hazard. In addition, the equipment list should be reevaluated and updated as more information about the site is gathered to ensure that the appropriate equipment is being used. Responders should receive ongoing training in the use of safety equipment.

This section can also address liability related to immediate and long term health hazards to emergency responders. State and local governments may want to consider insurance coverage and/or the development of waivers for employees and contractors who may be on site during a hazmat incident.

Function 9: Personal Protection of Citizens

Function 9a: Indoor Protection

- ☐ Hazard-specific personal protection

Comment: The plan should clearly indicate what protective action should be taken in especially hazardous situations. **Evacuation is sometimes, but not always, necessary.** (See Function 9b.) For some hazardous materials it is safer to keep citizens inside with doors and windows closed rather than to evacuate them. It is perhaps appropiate to go upstairs (or downstairs). Household items (e.g., wet towels) can provide personal protection for some chemical hazards. Frequently a plume will move quickly past homes. Modern housing has adequate air supply to allow residents to remain safely inside for an extended period of time. Because air circulation systems can easily transport airborne toxic substances, a warning should be given to shut off all air circulation systems (including heating, air conditioning, clothes dryers, vent fans, and fire places) both in private and institutional settings.

In order for an indoor protective strategy to be effective, planning and preparedness activities should provide:

- An emergency management system and decision-making criteria for determining when an indoor protection strategy should be used;
- A system for warning and advising the public;
- A system for determining when a cloud has cleared a particular area;
- A system for advising people to leave a building at an appropriate time; and
- Public education on the value of indoor protection and on expedient means to reduce ventilation.

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Function 9b: Evacuation Procedures

- ☐ Title of person and alternate(s) who can order/recommend an evacuation
- ☐ Vulnerable zones where evacuation could be necessary and a method for notifying these places
- ☐ Provisions for a precautionary evacuation
- ☐ Methods for controlling traffic flow and providing alternate traffic routes
- ☐ Shelter locations and other provisions for evacuations (e.g., special assistance for hospitals)
- ☐ Agreements with nearby jurisdictions to receive evacuees
- ☐ Agreements with hospitals outside the local jurisdictions
- ☐ Protective shelter for relocated populations
- ☐ Reception and care of evacuees
- ☐ Re-entry procedures

Comment: Evacuation is the most sweeping response to an accidental release. The plan should clearly identify under what circumstances evacuation would be appropriate and necessary. DOT's *Emergency Response Guidebook* provides suggested distances for evacuating unprotected people from the scene of an incident during the initial phase. It is important to distinguish between general evacuation of the entire area and selective evacuation of a part of the risk zone. In either case, the plan should identify how people will be moved (i.e., by city buses, police cars, private vehicles). Provision must be made for quickly moving traffic out of the risk zone and also for preventing outside traffic from entering the risk zone. If schools are located in the risk zone, the plan must identify the location to which students will be moved in an evacuation and how parents will be notified of this location. Special attention must also be paid to evacuating hospitals, nursing homes, and homes for the physically or mentally disabled.

Maps (drawn to the same scale) with evacuation routes and alternatives clearly identified should be prepared for each risk zone in the area. Maps should indicate precise routes to another location where special populations (e.g., from schools, hospitals, nursing homes, homes for the physically or

mentally disabled) can be taken during an emergency evacuation, and the methods of transportation during the evacuation.

Consideration of when and how evacuees will return to their homes should be part of this section.

This section on evacuation should include a description of how other agencies will coordinate with the medical community.

Copies of evacuation procedures should be provided to all appropriate agencies and organizations (e.g., Salvation Army, churches, schools, hospitals) and could periodically be published in the local newspaper(s).

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Function 9c: Other Public Protection Strategies

- ☐ Relocation
- ☐ Water supply protection
- ☐ Sewage system protection

Comment: Some hazardous materials incidents may contaminate the soil or water of an area and pose a chronic threat to people living there. It may be necessary for people to move out of the area for a substantial period of time until the area is decontaminated or until natural weathering or decay reduce the hazard. Planning must provide for the quick identification of a threat to the drinking water supply, notification of the public and private system operators, and warning of the users. Planners should also provide sewage system protection. A hazardous chemical entering the sewage system can cause serious and long-term damage. It may be necessary to divert sewage, creating another public health threat and environmental problems.

Function 10: Fire and Rescue

- ☐ Chain of command among firefighters
- ☐ List of available support systems
- ☐ List of all tasks for firefighters

Comment: This section lists all firefighting tasks, as well as the chain of command for firefighters. This chain of command is especially important if firefighters from more than one jurisdiction will be involved. Planners should check to see if firefighting tasks and the chain of command are mandated by their State law. Firefighters should be trained in proper safety procedures when approaching a hazardous materials incident. They should have copies of DOT's *Emergency Response Guidebook* and know how to find shipping manifests in trucks, trains, and vessels. Specific information about protective equipment for firefighters should be included here. (See Function 6, "Resource Management," and the *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.)*

This section should also identify any mutual aid or Good Samaritan agreements with neighboring fire departments, hazmat teams, and other support systems.

Function 11: Law Enforcement

- ☐ Chain of command for law enforcement officials
- ☐ List of all tasks for law enforcement personnel

Comment: This section lists all the tasks for law enforcement personnel during an emergency response. Planners should check to see if specific law enforcement tasks are mandated by their State law. Because major emergencies will usually involve State, county, and local law enforcement personnel, and possibly the military, a clear chain of command must be determined in advance. Because they are frequently first on scene, law enforcement officials should be trained in proper procedures for approaching a hazardous materials incident. They should have copies of DOT's *Emergency Response Guidebook* and know how to find shipping manifests in trucks, trains, and vessels. Specific information about protective equipment for law enforcement officials should be included here. (See Function 6, "Resource Management," and the *Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities.)*

This section should include maps that indicate control points where police officers should be stationed in order to expedite the movement of responders toward the scene and of evacuees away from the scene, to restrict unnecessary traffic from entering the scene, and to control the possible spread of contamination.

Function 12: Ongoing Incident Assessment

- ☐ Field monitoring teams
- ☐ Provision for environmental assessment, biological monitoring, and contamination surveys
- ☐ Food/water controls

Comment: After the notification that a release has occurred, it is crucial to monitor the release and assess its impact, both on and off site. A detailed log of all sampling results should be maintained. Health officials should be kept informed of the situation. Often the facility at which the release has occurred will have the best equipment for this purpose.

This section should describe who is responsible to monitor the size, concentration, and movement of leaks, spills, and releases, and how they will do their work. Decisions about response personnel safety, citizen protection (whether indoor or through evacuation), and the use of food and water in the

area will depend upon an accurate assessment of spill or plume movement and concentration. Similarly, decisions about containment and cleanup depend upon monitoring data.

Function 13: Human Services

- ☐ List of agencies providing human services
- ☐ List of human services tasks

Comment: This section should coordinate the activities of organizations such as the Red Cross, Salvation Army, local church groups, and others that will help people during a hazardous materials emergency. These services are frequently performed by volunteers. Advance coordination is essential to ensure the most efficient use of limited resources.

Function 14: Public Works

- ☐ List of all tasks for public works personnel

Comment: This section lists all public works tasks during an emergency response. Public works officials should also be familiar with Plan Section D ("Containment and Cleanup").

Function 15: Others

Comment: If the preceding list of functions does not adequately cover the various tasks to be performed during emergency responses, additional response functions can be developed.

Planning Element D: Containment and Cleanup

Planning Element D.1: Techniques for Spill Containment and Cleanup

- ☐ Containment and mitigation actions
- ☐ Cleanup methods
- ☐ Restoration of the surrounding environment

Comment: Local responders will typically emphasize the containment and stabilization of an incident; State regulatory agencies can focus on cleanup details. Federal

RRT agencies can provide assistance during the cleanup process. It is the releaser's legal and financial responsibility to clean up and minimize the risk to the health of the general public and workers that are involved. The Federal OSC or other government officials should monitor the responsible party cleanup activities.

A clear and succinct list of appropriate containment and cleanup countermeasures should be prepared for each hazardous material present in the community in significant quantities. This section should be coordinated with the section on "Response Personnel Safety" so that response teams are subjected to minimal danger. Planners should concentrate on the techniques that are applicable to the hazardous materials and terrain of their area. It may be helpful to include sketches and details on how cleanup should occur for certain areas where spills are more likely.

It is important to determine whether a fire should be extinguished or allowed to burn. Water used in firefighting could become contaminated and then would need to be contained or possibly treated. In addition, some materials may be water-reactive and pose a greater hazard when in contact with water. Some vapors may condense into pools of liquid that must be contained and removed. Accumulated pools may be recovered with appropriate pumps, hoses, and storage containers. Various foams may be used to reduce vapor generation rates. Water sprays or fog may be applied at downwind points away from "cold" pools to absorb vapors and/or accelerate their dispersal in the atmosphere. (Sprays and fog might not reduce an explosive atmosphere.) Volatile liquids might be diluted or neutralized.

If a toxic vapor comes to the ground on crops, on playgrounds, in drinking water, or other places where humans are likely to be affected by it, the area should be tested for contamination. Appropriate steps must be taken if animals (including fish and birds) that may become part of the human food chain are in contact with a hazardous material. It is important to identify in advance what instruments and methods can be used to detect the material in question.

Restoration of the area is a long-range project, but general restoration steps should appear in the plan. Specific consideration should be given to the mitigation of damages to the environment.

Planning Element D.2: Resources for Cleanup and Disposal

- ☐ Cleanup/disposal contractors and services provided
- ☐ Cleanup material and equipment
- ☐ Communications equipment
- ☐ Provision for long-term site control during extended cleanups
- ☐ Emergency transportation (e.g., aircraft, four-wheel-drive vehicles, boats)
- ☐ Cleanup personnel

- ☐ Personal protective equipment
- ☐ Approved disposal sites

Comment: This section is similar to the yellow pages of the telephone book. It provides plan users with the following important information:

- What types of resources are available (public and private);
- How much is stockpiled;
- Where it is located (address and telephone number); and
- What steps are necessary to obtain the resources.

Organizations that may have resources for use during a hazardous materials incident include:

- Public agencies (e.g., fire, police, public works, public health, agriculture, fish and game);
- Industry (e.g., chemical producers, transporters, storers, associations; spill cleanup contractors; construction companies);
- Spill/equipment cooperatives; and
- Volunteer groups (ham radio operators, four-wheel-drive vehicle clubs).

Resource availability will change with time, so keep this section of the plan up-to-date.

Hazardous materials disposal may exceed the capabilities of smaller cities and towns; in such cases, the plan should indicate the appropriate State and/or Federal agency that is responsible for making decisions regarding disposal.

Disposal of hazardous materials or wastes is controlled by a number of Federal and State laws and regulations. Both CERCLA and RCRA regulate waste disposal and it is important that this section reflect the requirements of these regulations for on-site disposal, transportation, and off-site disposal. The plan should include an updated list of RCRA disposal facilities for possible use during an incident.

Many States have their own regulations regarding transport and ultimate disposal of hazardous waste. Usually such regulations are similar and substantially equal to Federal regulations. Contact appropriate State agency offices for information on State requirements for hazardous waste disposal.

Planning Element E: Documentation and Investigative Follow-Up

- ☐ List of required reports
- ☐ Reasons for requiring the reports
- ☐ Format for reports
- ☐ Methods for determining whether the response mechanism worked properly
- ☐ Provision for cost recovery

Comment: This section indicates what information should be gathered about the release and the response operation. Key response personnel could be instructed to maintain an accurate log of their activities. Actual response costs should be documented in order to facilitate cost recovery.

It is also important to identify who is responsible for the post-incident investigation to discover quickly the exact circumstances and cause of the release. Critiques of real incidents, if handled tactfully, allow improvements to be made based on actual experience. The documentation described above should help this investigation determine if response operations were effective, whether the emergency plan should be amended, and what follow-up responder and public training programs are needed.

Planning Element F: Procedures for Testing and Updating Plan

Planning Element F.1: Testing the Plan

- ☐ Provision for regular tabletop, functional, and full-scale exercises

Comment: Exercises or drills are important tools in keeping a plan functionally up-to-date. These are simulated accidental releases where emergency response personnel act out their duties. The exercises can be tabletop and/or they can be realistic enough so that equipment is deployed, communication gear is tested, and "victims" are sent to hospitals with simulated injuries. Planners should work with local industry and the private medical community when conducting simulation exercises, and they should provide for drills that comply with State and local legal requirements concerning the content and frequency of drills. After the plan is tested, it should be revised and retested until the planning team is confident that the plan is ready. The public should be involved in or at least informed of these exercises. FEMA, EPA, and CMA provide guidance on simulation exercises through their training programs complementing this guide.

This section should specify:

(1) The organization in charge of the exercise;

(2) The types of exercises;

(3) The frequency of exercises; and

(4) A procedure for evaluating performance, making changes to plans, and correcting identified deficiencies in response capabilities as necessary. (See Chapter 6 of this guide.)

Planning Element F.2: Updating the Plan

☐ Title and organization of responsible person(s)

☐ Change notification procedures

☐ How often the plan should be audited and what mechanisms will be used to change the plan

Comment: Responsibility should be delegated to someone to make sure that the plan is updated frequently and that all plan holders are informed of the changes. Notification of changes should be by written memorandum or letter; the changes should be recorded in the RECORD OF AMENDMENTS page at the front of the completed plan. Changes should be consecutively numbered for ease of tracking and accounting.

Following are examples of information that must regularly be checked for accuracy:

(1) Identity and phone numbers of response personnel

(2) Name, quantity, properties, and location of hazardous materials in the community. (If new hazardous materials are made, used, stored, or transported in the community, revise the plan as needed.)

(3) Facility maps

(4) Transportation routes

(5) Emergency services available

(6) Resource availability

This topic is considered in greater detail in Chapter 6 of this guidance.

Planning Element G: Hazards Analysis (Summary)

☐ Identification of hazards

☐ Analysis of vulnerability

☐ Analysis of risk

Comment: This analysis is a crucial aspect of the planning process. It consists of determining where hazards are likely to exist, what places would most likely be adversely affected, what hazardous materials could be involved, and what

conditions might exist during a spill or release. To prepare a hazards analysis, consult Chapter 3 of this guide, EPA's CEPP technical guidance, and DOT's *Community Teamwork* and *Lessons Learned*. Ask Federal offices (listed in Appendix F) for information about available computer programs to assist in a hazards analysis.

Individual data sheets and maps for each facility and transportation routes of interest could be included in this section. Similar data could be included for recurrent shipments of hazardous materials through the area. This section will also assess the probability of damage and/or injury. In communities with a great deal of hazardous materials activity, the hazards analysis will be too massive to include in the emergency plan. In that case, all significant details should be summarized here.

Planning Element H: References

Planning Element H.1: Laboratory, Consultant, and Other Technical Support Resources

☐ Telephone directory of technical support services

- Laboratories (environmental and public health)
- Private consultants
- Colleges or universities (chemistry departments and special courses)
- Local chemical plants

Comment: This section should identify the various groups capable of providing technical support and the specific person to be contacted. Medical and environmental laboratory resources to assess the impact of the most probable materials that could be released should be identified. Note should be made about the ability of these laboratories to provide rapid analysis. These technical experts can provide advice during a disaster and also be of great service during the development of this plan. For this reason, one of the first planning steps should be gathering information for this section.

Planning Element H.2: Technical Library

☐ List of references, their location, and their availablility

- General planning references
- Specific references for hazardous materials
- Technical references and methods for using national data bases
- Maps

Comment: Industry sources can provide many specific publications dealing with hazardous materials. This section of the plan will list those published resources that are actually available in the community. Also list any maps (e.g., of facilities, transportation routes) that will aid in the response to an accidental spill or release.

The list of technical references in Appendix E could be helpful. Regional Federal offices can also be contacted (see Appendix F).

It is important for planners to acquire, understand, and be able to use available hazardous materials data bases, including electronic data bases available from commercial and government sources. Planning guides such as DOT's *Community Teamwork*, CMA's CAER program, EPA's CEPP technical guidance, and this guide should also be available locally.
