

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

Hazardous Materials Emergency Preparedness Planning Curriculum Guidelines

Appendix: Additional Planning Resources

Table of Contents

Plan Guide Summaries

1. Federal Emergency Management Agency, Guide for All-Hazard Emergency Operations Planning, SLG 101, September 1996.
2. National Response Team, *Hazardous Materials Emergency Planning Guide*, NRT-1, March 1987.
3. U.S. Environmental Protection Agency, Federal Emergency Management Agency, and U.S. Department of Transportation, *Technical Guidance for Hazards Analysis*, December 1987.
4. Federal Emergency Management Agency, U.S. Department of Transportation, and U.S. Environmental Protection Agency, *Handbook of Chemical Hazard Analysis Procedures*.
5. Federal Emergency Management Agency, *Emergency Management Guide for Business and Industry*, FEMA 141, October 1993.

Planning Models

1. Federal Emergency Management Agency, *Guide for All-Hazard Emergency Operations Planning*, SLG 101, September 1996.
2. National Response Team, *Hazardous Materials Emergency Planning Guide*, NRT-1, March 1987.
3. U.S. Environmental Protection Agency, Federal Emergency Management Agency, and U.S. Department of Transportation, *Technical Guidance for Hazards Analysis*, December 1987.
Initial Screening
Planning for Facilities by Priority
4. Federal Emergency Management Agency, U.S. Department of Transportation, and U.S. Environmental Protection Agency, *Handbook of Chemical Hazard Analysis Procedures*.
5. Federal Emergency Management Agency, *Emergency Management Guide for Business & Industry*, FEMA 141, October 1993.

Terrorist Incident Response Planning Models

- Planning for Response to Terrorist Incidents
- All-Hazards, Functional Planning Approach: Community EOP with Terrorism Annex
- Federal Response Plan
- The Community Emergency Operations Plan (EOP)
- Terrorist Threat-Specific Planning Approach: The Metropolitan Medical Strike Team Model

Plan Guide Summaries

This appendix provides content summaries of key reference documents used in the preparation of the *Hazardous Materials and Terrorist Incident Response Planning Curriculum Guidelines*. These materials include:

1. *Guide for All-Hazard Emergency Operations Planning* (FEMA SLG 101)
2. *Hazardous Materials Emergency Planning Guide* (NRT-1)
3. *Technical Guidance for Hazards Analysis* (EPA/FEMA/DOT)
4. *Handbook of Chemical Hazard Analysis Procedures* (FEMA/DOT/EPA)
5. *Emergency Management Guide for Business & Industry* (FEMA 141).

More information on the planning models described in these materials is presented in the section “Planning Models”, in this document.

1. Federal Emergency Management Agency, Guide for All-Hazard Emergency Operations Planning, SLG 101, September 1996.

The Guide is designed as a “toolbox” of ideas and advice, not a sample emergency operations plan (EOP). It is intended primarily for use by personnel responsible for EOP development and maintenance in state and local emergency management agencies. It establishes no requirements, and its recommendations may be used, adapted, or disregarded.

This SLG replaces Civil Preparedness Guide (CPG) 1-8, *Guide for the Development of State and Local Emergency Operations Plans* (dated September 10, 1990); CPG 1-8A, *Guide for the Review of State and Local Emergency Operations Plans*, (dated October 1992); and CPG 1-10, *Guide for the Development of a State and Local Continuity of Government Capability* (dated July 27, 1987), which have been rescinded.

The document is organized as follows:

- Chapter 1 explains what an EOP is at the state and local levels, why the EOP is a necessary part of a comprehensive approach to emergency management, and how the EOP relates to other aspects of the comprehensive, risk-based, all-hazard approach.
- Chapter 2 describes the approach FEMA recommends for a step-by-step process of risk-based, all-hazard emergency operations planning (see Appendix B for more detail).
- Chapter 3 suggests how to format the results of the planning process in a written EOP. Components discussed include the Basic Plan, functional annexes, hazard-specific appendices, SOPs, and checklists.
- Chapter 4 lists and discusses elements of the Basic Plan, and provides detailed examples of the types of tasking that should be assigned to agencies, organizations, and individuals under the plan.
- Chapter 5 explains the purpose of functional annexes, and provides a brief description of eight core functions: Direction and Control, Communications, Warning, Emergency Public Information, Evacuation, Mass Care, Health and Medical Services, and Resource Management.

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

- Chapter 6 notes unique aspects of certain hazards, including associated regulatory requirements. It suggests how to address hazardous materials in the all-hazard EOP rather than in a stand-alone plan. The chapter is not meant to replace hazard-specific planning guidance issued by the National Response Team.
- Chapter 7 contains information on integrating State EOPs with the Federal Response Plan, so that all levels of government can provide a coordinated response to communities in need.

2. National Response Team, *Hazardous Materials Emergency Planning Guide*, NRT-1, March 1987.

This guidance is intended to help local communities prepare for potential incidents involving hazardous materials. It describes how to form a local planning team, find a team leader, identify and analyze hazards, identify existing response equipment and personnel, write a plan, and keep the plan up to date. The information can be used both by local communities developing their own plan, and by local emergency planning committees formed in accord with the “Emergency Planning and Community Right-to-Know Act of 1986.”

State officials seeking to develop a state emergency plan that is closely coordinated with local plans can adapt this guidance to their purposes. Likewise, officials of chemical plants, railroad yards, and shipping and trucking companies can use the guide to coordinate their own hazardous materials emergency planning with that of the local community.

The guidance deals specifically with response to hazardous materials incidents—both at fixed facilities (manufacturing, processing, storage, and disposal) and during transportation (highways, waterways, rail, and air). Plans for responding to radiological incidents and natural emergencies such as hurricanes, floods, and earthquakes are not the focus of this guidance, although most aspects of plan development and appraisal are common to these emergencies.

The guide is intended to focus community activity on emergency preparedness and response; provide communities with information useful in organizing the planning task; furnish criteria to determine risk and to help communities decide whether they need to plan for hazardous materials incidents; help communities conduct planning that is consistent with their needs and capabilities; and provide a method for continually updating a community’s emergency plan.

The document is organized as follows:

- Chapter 1: Introduction
- Chapter 2: Selecting and Organizing the Planning Team
- Chapter 3: Tasks of the Planning Team
- Chapter 4: Developing the Plan
- Chapter 5: Hazardous Materials Planning Elements
- Chapter 6: Plan Appraisal and Continuing Planning

Several appendices provide helpful information for community planning. In particular, Appendix A includes a detailed summary of Title III of SARA, and Appendix D presents criteria that can be used to assess a state or local hazardous materials emergency response preparedness program.

3. U.S. Environmental Protection Agency, Federal Emergency Management Agency, and U.S. Department of Transportation, *Technical Guidance for Hazards Analysis*, December 1987.

The purpose of this guide is to help local emergency planning committees (LEPCs) conduct site-specific hazards analyses for airborne releases of extremely hazardous substances (EHSs), as required by Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA), also known as the Emergency Planning and Community Right-to-Know Act (EPCRA). Although these substances may also threaten property and the environment, this guide is primarily concerned with lethal effects of airborne substances on humans.

This document represents a joint effort by EPA, FEMA, and DOT to provide coordinated and coherent technical guidance. Although the guide can be useful to all community and industry planners, it is intended especially for LEPCs established under the provisions of SARA. The three steps of hazards analysis—hazards identification, vulnerability analysis, and risk analysis—provide a decision-making process for the LEPCs to follow as they undertake the development of comprehensive emergency plans mandated by SARA Title III.

This document is organized as follows:

Chapter 1: Introduction and Overview

Chapter 2: Hazards Analysis: An Overview

2.1 - Hazards Identification

2.2 - Vulnerability Analysis for Airborne Extremely Hazardous Substances

2.3 - Risk Analysis

Chapter 3: Step-by-Step Procedures for Conducting a Hazards Analysis of Extremely Hazardous Substances

Chapter 4: Using the Results of a Hazards Analysis

Appendices:

Appendix A: Acronyms and Glossary of Terms

Appendix B: The Criteria Used to Identify Extremely Hazardous Substances

Appendix C: The List of Extremely Hazardous Substances

Appendix D: Additional Information on Levels of Concern

Appendix E: Sample Profile

Appendix F: Fire and Reactivity Hazards

Appendix G: Equations Used for the Estimation of Vulnerable Zones

Appendix H: General Considerations for Evacuation or In-Place Sheltering

Appendix I: Information Collecting to Evaluate Sites for Emergency Planning

Appendix J: Methods for Evaluating Hazards Used by Facilities

Appendix K: Evaluation Guide for Available Computer Applications Addressing

Appendix L: Selected Bibliography

Appendix M: EPA and FEMA Regional Contacts

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

4. Federal Emergency Management Agency, U.S. Department of Transportation, and U.S. Environmental Protection Agency, *Handbook of Chemical Hazard Analysis Procedures*.

The *Handbook of Chemical Hazard Analysis Procedures* has several objectives, one of which is to expand *NRT-1* and the *Technical Guidance on Hazards Analysis* documents by including information for explosive, flammable, reactive, and otherwise dangerous chemicals. Although *NRT-1* was aimed at addressing planning for all types of hazardous materials, SARA Title III required local planners to focus on a specific initial list of acutely toxic chemicals (referred to as Extremely Hazardous Substances) due to their high inhalation toxicity when airborne, and this was the primary focus of the supplemental guidance document. By introducing additional methodologies on how to plan for these and other dangerous chemicals, this handbook serves as a stepping stone from *NRT-1* and the *Technical Guidance on Hazards Analysis* to a more comprehensive approach for emergency planning.

Beyond providing additional methodologies for assessing the potential impacts of hazardous materials releases, this handbook also expands the three-step hazards analysis approach (hazard identification, vulnerability analysis, and risk analysis) presented in *NRT-1* and its supplement by introducing a four-step approach involving hazard identification, consequence analysis, probability analysis, and risk analysis. In addition, it provides a tutorial on hazardous chemicals, suggestions for applying hazard analysis results to writing and updating an emergency plan, and an expanded discussion of issues relating to sheltering-in-place (in-place protection) and evacuation.

The document is organized as follows:

- Chapter 1: Introduction
- Chapter 2: Key Properties of Chemical Substances
- Chapter 3: Actions Upon Release to the Environment
- Chapter 4: Fire Hazards of Chemical Substances
- Chapter 5: Explosion Hazards of Chemical Substances
- Chapter 6: Toxicity Hazards of Chemical Substances
- Chapter 7: Reactivity Hazards of Chemical Substances
- Chapter 8: Hazardous Material Classification Systems
- Chapter 9: Overview of the Hazard Analysis Process
- Chapter 10: Hazard Identification Guidelines
- Chapter 11: Probability Analysis Procedures
- Chapter 12: Consequence Analysis Procedures
- Chapter 13: Formulation of a Planning Basis
- Chapter 14: Use of Hazard Analysis Results in Emergency Planning
- Appendix A: A Tutorial on Fundamental Mathematical Skills
- Appendix B: Technical Basis for Consequence Analysis Procedures
- Appendix C: Overview of “Shelter-in-Place” Concepts
- Appendix D: Chemical Compatibility Chart
- Appendix E: Guide to Installation of the ARCHIE Computer Program
- Appendix F: Basis of Probability Analysis Procedures

5. Federal Emergency Management Agency, *Emergency Management Guide for Business and Industry*, FEMA 141, October 1993.

This guide provides step-by-step advice on how to create and maintain a comprehensive emergency management program. It can be used by manufacturers, corporate offices, retailers, utilities, or any organization where a sizable number of people work or gather. It applies equally to businesses large or small, whether they operate from a high-rise building or an industrial complex, and whether they own, rent or lease property.

Users of the document need not have in-depth knowledge of emergency management. All that is required is the authority to create a plan and a commitment from the chief executive officer to make emergency management part of the corporate culture.

Businesses that already have a plan can use this guide as a resource to assess and update the plan. The guide is organized as follows:

Section 1: Four Steps in the Planning Process—how to form a planning team; how to conduct a vulnerability analysis; how to develop a plan; and how to implement the plan. The information can be applied to virtually any type of business or industry.

Section 2: Emergency Management Considerations—how to build such emergency management capabilities as life safety, property protection, communications, and community outreach.

Section 3: Hazard-Specific Information—technical information about specific hazards the facility may face.

Section 4: Information Sources—where to turn for additional information.

Planning Models

Various explanations of the planning process can be found in the literature, including those described in the *Guide for All-Hazard Emergency Operations Planning* (FEMA SLG 101), *Hazardous Materials Emergency Planning Guide (NRT-1)*, *Technical Guidance for Hazards Analysis* (EPA/FEMA/DOT), *Handbook of Chemical Hazard Analysis Procedures* (FEMA/DOT/EPA), and *Emergency Management Guide for Business & Industry* (FEMA 141). These approaches to planning, which are briefly described here, incorporate the generic functional requirements of planning, although the steps and procedures may be defined somewhat differently. Jurisdictions and facilities should select and/or modify these models to best meet their unique planning needs and preferences.

1. Federal Emergency Management Agency, *Guide for All-Hazard Emergency Operations Planning*, SLG 101, September 1996.

Chapter 2 of this Guide, The Planning Process, describes principles and major steps recommended for developing an all-hazard plan for protecting lives and property within the jurisdiction. In particular, the benefits of a team approach to planning are emphasized, including the role of the Chief Executive Official (CEO). Steps in the development and continual refinement of an emergency operations plan (EOP) are summarized as follows:

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

- I. **Research**—This phase involves reviewing the jurisdiction’s planning framework, analyzing the hazards faced by the jurisdiction, determining the resource base, and noting characteristics of the jurisdiction that could affect emergency operations. Steps in research include:
 - A. Review applicable laws, regulatory requirements, local plans, mutual aid agreements, and existing guidance.
 - B. Conduct a Hazard/Risk Analysis
 1. Identify hazards
 - List hazards that concern emergency management
 - Determine whether these hazards have occurred or could occur
 2. Profile hazards and their potential consequences
 - Develop information on each hazard (frequency, magnitude, location, etc.)
 - Develop information on the potential consequences of the hazard
 3. Compare and prioritize risks
 4. Create and apply scenarios
 - C. Determine the resource base—list and quantify resources available for emergency response and recovery. Compare them with those needed for an effective emergency response to determine shortfalls.
 - D. Note special facets of the planning environment—geographic and topographic features that may affect operations, transportation routes, special populations, demographic and other trends, etc.
- II. **Development**—During this phase, the EOP is written through steps similar to these:
 - A. Developing a rough draft of the basic plan, functional annexes, and hazard-specific appendices; conducting preliminary briefings and interviews; conducting initial planning meetings and establishing committees for parts of the EOP; working with committees on successive drafts;
 - B. Preparing necessary graphics, and producing and circulating a final draft for planning team review and comment; holding meetings to obtain feedback and concurrence from organizations with identified responsibilities under the plan;
 - C. Obtaining official promulgation of the EOP; and printing and distributing the EOP.
- III. **Validation**—During this phase, the EOP is checked for conformity to applicable regulatory requirements and the standards of federal and state agencies. Recommended steps include conducting tabletop exercises with key representatives of tasked organizations as a practical means to help validate the plan; consulting with and participating in plans reviews with the next level of government; and using functional and full-scale emergency management exercises to determine if an EOP is understood and “works.”
- IV. **Maintenance**—As problems emerge, situations change, gaps become apparent, and requirements are altered, the plan must be continually adapted to remain useful and up-to-date. Possible steps include:
 - A. Remedial Action Process designed to (1) capture information from exercises, post-disaster critiques, self-assessments, audits, administrative reviews, and the like

which may indicate deficiencies; (2) bring together members of the planning team to discuss problems and to consider and assign responsibility for remedies; and (3) tracking and following up on assigned actions.

- B. Revision Process for review and modification of the EOP on at least an annual basis.
- C. Implementing Documents to ensure that each tasked organization or individual develops the SOPs necessary to facilitate the accomplishment of assigned tasks.

Attachment C of the Guide, Hazardous Materials, provides additional information on plan requirements for locating hazardous materials at fixed facilities and on transport routes, estimating vulnerable zones, determining vulnerability, and assessing risk. Planning considerations unique to hazardous materials are described under the following major headings:

- Direction and control
- Emergency public information
- Evacuation
- Mass care
- Health and medical
- Resource management

2. National Response Team, *Hazardous Materials Emergency Planning Guide*, NRT-1, March 1987.

This guidance presents a comprehensive approach to hazardous materials planning. However, it is emphasized that every community must plan according to its own situation. Small communities with few planning resources, or communities with few or no threatening hazards, can choose the planning elements appropriate to their circumstances. Steps in the planning process can be summarized as follows:

- I. Organizing the Planning Process
 - A. Selecting the planning team
 - B. Selecting the team leader
 - C. Organizing for planning team responsibilities, including staffing, managing the planning tasks, and the use of computers
- II. Review of Existing Plans
 - A. Reviewing applicable state and local emergency plans
 - B. Consulting with state and local agencies and volunteer organizations, regional offices of federal agencies, local industry and industrial associations, the RRT and OSC, etc.
- III. Hazards Analysis
 - A. Hazards Identification
 - B. Vulnerability Analysis
 - C. Risk Analysis
- IV. Capability Assessment—sample questions are presented to help the planning team evaluate preparedness, prevention, and response resources and capabilities in the following three categories:

Planning Training Considerations

Planning Orientation

Planning Essentials

Commodity Flow Study

Hazard Analysis and Threat Assessment

Capability Assessment

Planning for Protective Actions

Plan Implementation & Maintenance

Facility Planning

Planning for Public Education

Appendix: Additional Planning Resources

- A. Facility resources
 - B. Transporter resources
 - C. Community resources
- V. Developing the Plan
- A. Developing or revising a hazardous materials appendix to a multi-hazard EOP
 - B. Developing or revising a plan covering only hazardous materials

Planning elements and plan requirements that should be considered in this phase of the process are described in detail, including the following fourteen response functions:

- Initial Notification of Response Agencies
- Direction and Control
- Communication (among Responders)
- Warning Systems and Emergency Public Notification
- Public Information/Community Relations
- Resource Management
- Health and Medical
- Response Personnel Safety
- Personal Protection of Citizens
- Fire and Rescue
- Law Enforcement
- Ongoing Incident Assessment
- Human Services
- Public Works

VI. Plan Appraisal and Continuing Planning

- A. Plan Review and Approval
- B. Internal review
- C. External review

VII. Keeping the plan up-to-date

VIII. Continuing planning

- A. Exercises
- B. Incident review
- C. Training

3. U.S. Environmental Protection Agency, Federal Emergency Management Agency, and U.S. Department of Transportation, *Technical Guidance for Hazards Analysis*, December 1987.

This guidance is compatible with and recommends the same approach to hazardous materials planning as NRT-1. However, significantly more detail is presented on the Hazards Analysis step of the process. The hazards analysis is separated into two phases. The first phase is the initial screening of all facilities reporting Extremely Hazardous Substances (EHSs) on their premises in excess of their threshold planning quantities (TPQs). The initial screening is performed to establish priorities among reporting facilities using credible worst case assumptions. The second

phase represents a reassessment by order of priority of the potential hazards posed by the reporting facilities. This is accomplished through the reevaluation of the assumptions used for the initial screening.

Both the initial screening and the reevaluation phases utilize the three basic steps of hazards analysis: hazards identification, vulnerability analysis, and risk analysis. Steps in the process are summarized as follows:

Initial Screening

- I. Hazards Identification
 - A. List facilities that have reported EHSs in the community in excess of the TPQ.
 - B. Contact each facility on the list for information on the EHSs present.
 - C. Obtain information on transportation routes of EHSs, if possible.
 - D. Obtain information on hazardous materials, facilities, and transportation routes (other than for those with EHSs above the TPQ) listed by SERCs (optional).
- II. Vulnerability Analysis
 - A. Estimate the vulnerable zone for screening using credible worst case assumptions.
 - B. Identify characteristics of human populations within the estimated vulnerable zone.
 - C. Identify critical facilities within the estimated vulnerable zone.
- III. Risk Analysis
 - A. Collect information obtained in hazards identification and vulnerability analysis.
 - B. Make rough estimate of risks based on the likelihood of a release and severity of consequences.
 - C. Identify those facilities with higher priority due to the estimated risks they pose.

Planning for Facilities by Priority

- I. Hazards Identification
 - A. Contact each facility on the list and other expert sources for additional information.
 - B. Obtain additional information on typical transportation conditions, if possible.
- II. Vulnerability Analysis
 - A. Reestimate the vulnerable zone using reevaluated assumptions from the facility and other expert sources.
 - B. Identify characteristics of human populations within the estimated vulnerable zone.
 - C. Identify critical facilities within the estimated vulnerable zone.
- III. Risk Analysis
 - A. Collect all information obtained in hazards identification and vulnerability analysis in a table.
 - B. Obtain additional information on community and facility safeguards, response capabilities, and accident records.
 - C. Make a judgment of the probability of release and severity of consequences.
 - D. Organize all information (from A, B, and C) in a matrix format.
 - E. Rank risks.
 - F. Develop or revise emergency plans for higher priority facilities.

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

4. Federal Emergency Management Agency, U.S. Department of Transportation, and U.S. Environmental Protection Agency, *Handbook of Chemical Hazard Analysis Procedures*.

This guide presents four basic steps for conducting a hazard analysis, and a related fifth step that takes advantage of the knowledge gained during the effort to develop a comprehensive emergency plan. These steps include:

- I. **Hazard Identification**—location, identification, and characterization of potential spill sources and accident sites in the jurisdiction or locality of concern. This step essentially concludes with the identification and/or postulation of fundamental accident scenarios requiring further consideration and analysis. Results from the probability analysis which follows can often help in further refining these scenarios. Methods discussed include:
 - Enforcement of right-to-know laws
 - Use of fire department and building inspection records
 - Industry questionnaires
 - Meetings with business organizations and trade groups
 - Meetings with individual business personnel
 - Queries of rail, marine, and pipeline transportation companies
 - Truck traffic surveys
 - Use of permit records
 - Use of the “Yellow Pages”
 - Access to detailed chemical property data and hazard information
- II. **Probability Analysis**—evaluation of the likelihood of individual accident scenarios. This step permits examination and/or prioritization of potential accident scenarios in terms of their probability of occurrence. Categories of activities discussed include:
 - Bulk transportation by highway
 - Bulk transportation by rail
 - Bulk transportation by barge or other marine vessel
 - Transportation by pipeline
 - Bulk storage, processing, or handling at fixed facilities
 - Transportation of packaged hazardous materials
 - Transportation by air
- III. **Consequence Analysis**—evaluation of the consequences and impacts associated with the occurrence of postulated accident scenarios. This step provides an understanding of the nature and outcome of an accident and permits examination and/or prioritization of scenarios in terms of their potential impact on people and property. The Automated Resource for Chemical Hazard Incident Evaluation (ARCHIE) computer program and a set of hazard assessment procedures and models are discussed.
- IV. **Risk Analysis**—combination of results from the accident probability and consequence analysis efforts to provide a measure of overall risk associated with the specific activity or activities. The effort permits examination and/or prioritization of scenarios in terms of overall risk. Steps include:
 - Definition of annual accident probability categories
 - Definition of accident severity categories
 - Application of screening guidelines

V. **Formulation of a Planning Basis**—use of the results of the above activities during actual development and preparation of an emergency plan. The material includes discussion of 43 separate topics in 13 subject areas, as follows:

- Notification
- Command and Communications
- Evacuation
- Fire response
- Health Care
- Personal Protection
- Public Relations
- Spill Containment and Cleanup
- Spill Documentation
- Spill Monitoring
- Post-Spill Recovery
- Training
- Waste Disposal

5 Federal Emergency Management Agency, *Emergency Management Guide for Business & Industry*, FEMA 141, October 1993.

This document emphasizes the emergency planning and management needs of business and industry. Four steps are identified in the planning process, as follows:

- I. Establish a Planning Team
 1. Form the team
 2. Establish authority
 3. Issue a mission statement
 4. Establish a schedule and budget
- II. Analyze Capabilities and Hazards
 - A. Where do you stand right now?
 1. Review internal plans and policies
 2. Meet with outside groups
 3. Identify codes and regulations
 4. Identify critical products, services, and operations
 5. Identify internal resources and capabilities
 6. Identify external resources
 7. Do an insurance review
- III. Conduct a vulnerability analysis
 1. List potential emergencies
 1. Estimate probability
 2. Assess the potential human impact
 3. Assess the potential property impact

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

4. Assess the potential business impact
5. Assess internal and external resources
6. Add the columns

IV. Develop the Plan

- A. Identify challenges and prioritize activities
- B. Write the plan
- C. Establish a training schedule
- D. Coordinate with outside organizations
- E. Maintain contact with other corporate offices
- F. Review, conduct training and revise
- G. Seek final approval
- H. Distribute the plan

V. Implement the Plan

- A. Integrate the plan into company operations
- B. Conduct training (including exercises and drills)
- C. Evaluate and modify the plan

The guide also identifies planning considerations that are unique to hazardous materials, as well as core operational considerations of emergency management, in the following categories:

- • Direction and Control
- • Communications
- • Life Safety
- • Property Protection
- • Community Outreach
- • Recovery and Restoration
- • Administration and Logistics

Terrorist Incident Response Planning Models

Terrorism and weapons of mass destruction (WMD) are the subject of much-needed attention, both in the news media and by government officials at all levels of emergency response. WMDs are “weapons or devices that are intended, or have the capability, to cause death or serious bodily injury to a significant number of people, through the release, dissemination, or impact of toxic poisonous chemicals; disease organisms; or radiation or radioactivity.” While major metropolitan areas across the United States have done WMD planning since the mid-1990s, when the Nunn-Lugar-Domenici provision of the National Defense Authorization Act of 1997 legislation first provided funding for the planning, the events of September 11, 2001 have released a torrent of money to combat terrorism. Some communities have found it easier to use this money to buy specialized equipment rather than do spend the money on intensive planning efforts required at the local level. “It’s easier to show the County Commissioners new decontamination equipment than convince them that the same amount of money spent on a WMD plan is well worth the investment,” said one county planner.

A January 2002 study by the National Association of Counties (NACo) and the National Association of County/City Health Officials (NACCHO) found that more than 90% of the 300 responding public health departments reported that their counties were ill-prepared to respond to any sort of bioterrorist event. Using a scale of 1 to 5, with 1 - "no plan in place," and 5 - "having a well understood and tested plan in place," counties were asked to rate their levels of preparedness. Only 3 percent of the jurisdictions ranked themselves at 5.

Local jurisdictions know they must plan how to respond themselves because multiple strikes in various locations may make it impossible for neighboring communities to assist. State and federal response resources are likely to be hours, if not days, away. WMD event-specific factors include:

- planning for more extensive and longer term mutual aid operations
- planning more extensive casualty care operations
- preparing to fit local response operations into a larger federal response environment than would occur in hazardous materials incidents
- preparing for more complex technical operations in the face of more esoteric and unusual chemical and biological threats
- preparing emergency communications systems to accommodate a much larger volume of traffic and greater number of users
- planning for more extensive notification requirements and more far-reaching resource request coordination
- preparing for sustaining critical government operations in the face of infrastructure damage akin to that experienced in large disasters
- preparing for managing public communications in an environment of high public concern and hysteria

Communities and states have already completed much of the first steps toward a WMD response plan by going through the State Domestic Preparedness Equipment Program for the Office of Domestic Preparedness (ODP). Each community followed a needs assessment process that indicated how terrorism funds could best be applied against a domestic preparedness strategy for the entire state. The steps are listed below:

- Step 1 – Identification and Coordination of Jurisdictions
- Step 2 – Risk Assessment Process
- Step 3 – Capabilities and Needs Assessment
- Step 4 – Jurisdiction Prioritization Matrix
- Step 5 – Three-year Projection Forms
- Step 6 – Additional Training Information
- Step 7 – Emergency Response Team Survey
- Step 8 – Recommendations for State and Local Response to WMD Terrorism Incidents
- Step 9 – Statewide Domestic Preparedness Strategy

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

Planning for Response to Terrorist Incidents

The process for planning for terrorist incidents is evolving. Two basic approaches to WMD planning are commonly used today.

The first approach is an all hazards, functional planning approach which often uses the existing Community Emergency Operations Plan (EOP) as the guiding plan, with a separate annex to anticipate and exercise unique responses for the requirements of a terrorist incident. In this approach, the threat of a terrorist incident is treated as a subset of the many other hazards that a community must prepare for.

The second approach is terrorist threat specific, and treats the threat of a terrorist incident as a separate entity requiring unique and separate planning and preparation for response. A prime example is the Metropolitan Medical Strike Team Model. Terrorist threat specific planning can provide greater flexibility in terms of methods for assessing worst-case scenarios and allows closer focus on terrorist threats, but also can be more resource intensive and can require additional response planning teams and documentation duplicative of other response planning occurring in the jurisdiction.

This appendix provides a brief discussion of both approaches, followed by a response resource guide describing many of the additional response resources available to local response to terrorist incidents, to be considered in response planning.

All-Hazards, Functional Planning Approach: Community EOP with Terrorism Annex

The first approach is that the roles, responsibilities, and principles of planning for WMD incidents are very similar at the local level to those for hazardous materials incidents and other emergencies that affect communities on a regular basis. A comprehensive Community Emergency Operations Plan (EOP) that has been thoroughly reviewed, is well understood by all response and support agencies, and that has been exercised completely will work whether an incident is a hazardous materials incident or a WMD attack.

Federal Response Plan

The all-hazard approach is mirrored in the Federal Response Plan (FRP), which describes the mechanisms and structures that the federal government will use to mobilize resources and conduct activities to assist State and local response efforts. The FRP uses a functional approach to group the types of federal assistance that a state is most likely to need under 12 Emergency Support Functions (ESF). The FRP describes how each of the signatory agencies contributes to the response efforts. It was developed under the provisions of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Public Law 93-288, as amended).

The Terrorism Annex to the FRP describes the policies, situation, planning assumptions, concept of operations, and responsibilities for handling a WMD incident. Many states and communities use this same approach when planning how to tailor their own response to a terrorist event.

The following planning assumptions have been drawn from the Terrorism Incident Annex to the Federal Response Plan:

- No single agency at the local, State, Federal, or private-sector level possesses the authority and expertise to act unilaterally on many difficult issues that may arise in response to a threat or act of terrorism, particularly if WMD are involved.
- An act of terrorism, particularly an act directed against a large population center within the United States involving WMD, may produce major consequences that would overwhelm the capabilities of many local and State governments almost immediately.
- Major consequences involving WMD may overwhelm existing Federal capabilities as well, particularly if multiple locations are affected.
- Local, State, and Federal responders will define working perimeters that may overlap. Perimeters may be used to control access to the area, target public information messages, assign operational sectors among responding organizations, and assess potential effects on the population and the environment. Control of these perimeters may be enforced by different authorities, which will impede the overall response if adequate coordination is not established.
- If appropriate personal protective equipment is not available, entry into a contaminated area (i.e., a hot zone) may be delayed until the material dissipates to levels that are safe for emergency response personnel. Responders should be prepared for secondary devices.
- Operations may involve geographic areas in a single State or multiple States, involving responsible FBI Field Offices and Regional Offices, as appropriate. The FBI and FEMA will establish coordination relationships as appropriate, based on the geographic areas involved.
- Operations may involve geographic areas that spread across U.S. boundaries. The Department of State is responsible for coordination with foreign governments.
- The FRP may be implemented concurrently with the:
 - National Plan for Telecommunications Support in Non-Wartime Emergencies, which provides a basis for ESF #2
 - National Oil and Hazardous Substances Pollution Contingency Plan, known as the National Contingency Plan (NCP), which provides the basis for ESF #10
 - Federal Radiological Emergency Response Plan (FRERP), which details the Federal response to a peacetime radiological emergency.
 - Presidential Decision Directive 39 (PDD-39) and PDD-62 that set forth U.S. counterterrorism policy

The FRP Terrorism Incident Annex (called for in PDD-39) describes the concept of operations for a unified response to a terrorism incident involving two or more of the following plans: the FRP, the Federal Bureau of Investigation (FBI) Weapons of Mass Destruction (WMD) Incident Contingency Plan, and the Department of Health and Human Services (HHS) Health and Medical Services Support Plan for the Federal Response to Acts of Chemical/Biological Terrorism (discussed in the next section).

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

The Community Emergency Operations Plan (EOP)

Many community EOPs, which are developed using this same approach, consist of a basic plan, functional annexes, and hazard-specific appendices. These are supplemented, as needed, by standard operating procedures (SOPs) and checklists for implementation of the plan.

Federal agencies, including the United States Fire Administration (USFA) and the Environmental Protection Agency (EPA), remind local LEPCs to be sure they update their emergency plans before adding information about response to a WMD incident.

FEMA's Guide for All-Hazard Emergency Operations Planning and the National Response Team's Hazardous Materials Emergency Planning Guide (NRT-1) state that the decision to develop a hazard-specific appendix (including WMD-specific) should be based on special planning requirements not common to other hazards addressed in the functional annex, and on regulatory considerations that may require extensive, detailed planning that is inappropriate for inclusion in the annex.

According to the latest FEMA Guidance for All-Hazard Emergency Operations Planning, the situation section for a Terrorism Incident Annex (TIA) should discuss what constitutes a potential or actual WMD incident. It should present a concise, clear, and accurate overview of potential events and discuss a general concept of operations for response. Any information already included in the EOP need not be duplicated in the TIA. The situation overview should include as much information as possible that is unique to WMD response actions, including maps, environment, population, and provisions for working with Federal crisis and consequence management agencies.

Assumptions for working with levels beyond the county or local jurisdiction should include:

- The first responder or health and medical personnel will, in most cases, initially detect and evaluate the potential or actual incident, assess casualties (if any), and determine whether assistance is required.
- If so, State support will be requested and provided. This assessment will be based on warning or notification of a WMD incident that may be received from law enforcement, emergency response agencies, or the public.
- The incident may require Federal support. To ensure that there is one overall Lead Federal Agency (LFA), the Federal Emergency Management Agency (FEMA) is authorized to support the Department of Justice (DOJ) as delegated to the Federal Bureau of Investigation [FBI] until the Attorney General transfers the overall LFA role to FEMA.
- In addition, FEMA is designated as the lead agency for consequence management within the United States and its territories. FEMA retains authority and responsibility to act as the lead agency for consequence management throughout the Federal response. In this capacity, FEMA will coordinate Federal assistance requested through State authorities using normal FRP mechanisms.
- Federal response will include experts in the identification, containment, and recovery of WMD (chemical, biological, or nuclear/radiological). See Appendix ?, a brief description of some of the Federal resources available.

- Federal consequence management response will entail the involvement of FEMA, additional FRP departments and agencies, and the American Red Cross, as required.

In addition to the documents discussed above, information to assist with this planning can be found in the following FEMA documents:

- Introduction to State and Local EOP Planning Guidance
 - Federal FY 2002 supplemental funding totaling \$100 million is being provided to state and local governments to update their all-hazards Emergency Operations Plans (EOP), to include a focus on WMD incidents. The purpose of this guidance is to help state and local governments fine-tune their EOPs and address critical planning considerations to include interstate and intrastate mutual aid agreements, resource typing, resource standards, protection of critical infrastructure, inventory of critical response equipment and teams, continuity of operations and family and community preparedness
- Managing the Emergency Consequences of Terrorist Incidents – Interim Guidelines
 - This is an interim planning guide that is designed to provide state and local emergency management planners with a framework for developing supplemental emergency operations plans that address the consequences of a terrorist attack involving weapons of mass destruction. It provides a consistent planning approach that encourages the efficient integration of state, local and federal terrorism response activities and provides the most current information regarding planning and operational challenges faced by communities that have dealt with terrorist events.
- Tool Kit for Managing the Emergency Consequences of Terrorist Incidents
 - This tool kit provides forms, checklists and charts to facilitate state and local planning for a terrorist incident. It includes a capability assessment survey, a checklist of functional responsibilities and emergency public information activities as well as tools for direction and control, managing resources and disseminating warnings.
- CONPLAN – Federal Interagency Domestic Terrorism Concept of Operations Plan
 - The CONPLAN provides overall guidance to federal, state and local agencies concerning how the federal government would respond to a potential or actual terrorist threat or incident that occurs in the United States, particularly one involving WMD.
- Hazardous Materials Planning Guide 2001 Update
 - This 2001 update of the National Response Team’s Hazardous Materials Emergency Planning Guide (NRT-1) provides guidance on developing state and local emergency response plans for hazardous materials events. It can be found under “New Publications.” The National Response Team is made up of 16 federal agencies, each with responsibilities and expertise in emergency response to hazardous chemical releases, oil discharges and other toxic spills.

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

- Comprehensive HazMat Emergency Response – Capability Assessment Program (CHER-CAP)
 - CHER-CAP is a comprehensive preparedness program offered by FEMA to local communities and Tribal governments to address HazMat incidents. It is designed to help communities better understand HazMat risks, identify planning deficiencies, update plans, train first responders and identify systemic strengths and needed improvements.
- CSEPP (Chemical Stockpile Emergency Preparedness Program) Planning Guidance
 - The primary strategic document providing state, local and Army installation planners with guidelines for formulating and coordinating emergency plans and the associated emergency response systems for chemical events that may occur at the chemical agent stockpile storage locations in the continental United States.

Terrorist Threat-Specific Planning Approach: The Metropolitan Medical Strike Team Model

“Community EOP > Hazardous Materials Plan > Terrorist Plan > Prepared Community”

The second approach is the Metropolitan Medical Strike Team Model (MMST). The first MMSTs were established as prototypes in Arlington County in the metropolitan area of Washington, DC and in preparation for the 1996 Centennial Olympic Games in Atlanta. More than 120 cities and metropolitan areas have used the funds provided by the Department of Health and Human Services (DHHS) to plan and equip systems with specially trained first responders, special pharmaceuticals and decontamination equipment, on-site health care, and enhanced emergency medical transportation and emergency room capabilities.

This approach was developed from the Domestic Preparedness Program of the Nunn-Lugar-Domenici legislation, which also called for the Army's Chemical and Biological Defense Command (CBD-COM) to design a train-the-trainer program to build on the existing knowledge and capabilities of local first responders—fire, law enforcement, and medical personnel and hazmat technicians—who would face a WMD incident during the first hours.

MMSTs are designed to provide initial, on-site response and provide for transportation of decontaminated patients to hospital emergency rooms in the event of a terrorist attack. They are also capable of providing medical and mental health care to victims of such attacks and moving victims to other regions if local health care resources are overrun. MMSTs consist of fire service, EMS, physicians, nurses, and law enforcement officials. The team is divided into three groups which rotate assignments. Therefore, one task force is always on duty, the second is on standby and the third is off.

When an accident involving hazardous materials occurs, whether transportation or fixed-facility, parameters exist. Terrorism exists without parameters. While those who use the MMST model acknowledge that a nuclear or chemical WMD event is, inherently, a hazmat incident, their approach states that “there are significant differences between the two types of incident that influence a civil jurisdiction’s response planning, organization, training, equipment, operational procedures, and coordination requirements.”

An introduction to San Jose’s Response Plan for Terrorist Incidents involving WMD Nuclear, Biological, or Chemical Agents (NBC) states that such a terrorist incident may be characterized by:

- The use of WMD designed to inflict mass casualties
- The high lethality of biological or chemical agents
- The extremely toxic environment resulting from NBC/WMD
- The initial ambiguity in determining what type of NBC weapon or agent is involved
- The potential for a combination of weapons/agents each presenting different response requirements, i.e., explosives and chemical agents or simultaneous explosives, chemical agents, and radioactive material dispersal
- The narrow window-of-response time to administer lifesaving antidotes for chemical agents and antibiotics for biological agents
- The need for immediate medical treatment for mass casualties
- The need for immediately available specialized pharmaceuticals
- The need for specialized WMD/NBC detection equipment
- The need for a timely, efficient, and effective mass decontamination system
- The need for an organized, trained, and equipped health and medical services emergency response unit to immediately augment the local HAZMAT/EMS response
- The need for pre-event coordination with hospitals and medical treatment centers to establish medical treatment protocols, stock appropriate pharmaceuticals, and determine treatment procedure requirements and
- The need to accomplish advance planning and coordination to respond to each of the needs identified above

Following is the MMST Model Table of Contents, showing how the plan is organized:

- Introduction
- Mission, Concept of Operations, Organization, and NDMS Interface
- Training (DRAFT)
- NBC use Indicators and Response Concerns for First Responders
- Operations Management Guide:
 - Describes each of the four phases in which NBC terrorism preparedness and response activities are categorized: awareness, alert, warning, and response
 - Lists the indications of a Terrorist Incident involving NBC/WMD and outlines the operational considerations
 - Describes coordination of response efforts and use of ICS for initial command and control, and expansion of ICS to unified command
- Operational Checklists
- Bioterrorism Response Plan: Recognition and Evaluation
- Bioterrorism Response Plan: Casualty Management Strategy
- Bioterrorism Response Plan: Site Management Strategy
- Bioterrorism Response Plan: Site Management Strategy Table
- Bioterrorism Response Plan: Non-Site Management Strategy
- Mass Fatality Management
- Recovery Plan

Planning
Training
Considerations

Planning
Orientation

Planning
Essentials

Commodity
Flow Study

Hazard Analysis
and Threat
Assessment

Capability
Assessment

Planning for
Protective
Actions

Plan
Implementation
& Maintenance

Facility
Planning

Planning for
Public Education

Appendix:
Additional Planning
Resources

- Supplemental Planning Guide - Health & Medical Services
- Supplemental Planning Guide - Law Enforcement
- Appendix A - Incident Exposure Report
- Appendix B - Patient Decontamination Procedure
- Appendix C - Technical Decontamination Procedure
- Appendix D - Emergency Decontamination Procedure
- Appendix E - Equipment Cache Requirements
- Appendix F - Pharmaceutical Support.

DRAFT