

INCIDENT COMMAND SYSTEM

HAZARDOUS MATERIALS OPERATIONAL SYSTEM DESCRIPTION

ICS-HM-120-1

February 15, 2005

This document contains information relative to the Incident Command System (ICS) component of the National Incident Management System (NIMS). This is the same Incident Command System developed by FIREScope.

Additional information and documentation can be obtained from the following sources:

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INTRODUCTION

The Hazardous Materials organizational module to the Incident Command System is designed to provide an organizational structure that will maintain necessary supervision and control for the essential functions required at virtually all hazardous materials incidents. This is based on the premise that controlling the tactical operations and the movement of personnel and equipment will provide a greater degree of safety and also reduce the probability of spreading of contaminants. The primary functions of the Hazardous Materials Group will be directed by the Hazardous Materials Group Supervisor. All resources that have a direct involvement with the hazardous material incident will be supervised by one of the functional leaders or by the Hazardous Materials Group Supervisor.

The three functional positions within the Hazardous Materials Group (Entry Leader, Decontamination Leader, and Site Access Control Leader) require a high degree of control and close supervision. The Entry Leader supervises all resources operating in the Exclusion Zone. The Entry Leader has the responsibility to direct all tactics, and control the actions of all personnel in the Exclusion Zone. The Decontamination Leader supervises all operations in the Contamination Reduction Zone (with the exception of the Safe Refuge Area). The Decontamination Leader ensures all rescued citizens, personnel, and equipment has been decontaminated before leaving the incident. The Site Access Control Leader controls all movement of personnel and equipment between the Control Zones. The Site Access Control Leader has the responsibility for isolating the Exclusion and Contamination Reduction Zone and ensuring that citizens and personnel use proper access routes. The Site Access Control Leader has the responsibility for the safety and control of movement of people in the Safe Refuge Area. A Safe Refuge Area Manager may be appointed by the Site Access Control Leader when citizens are suspected of being injured or contaminated.

The Hazardous Materials Group Supervisor manages these three functional responsibilities that includes all tactical operations carried out in the Exclusion Zone. All rescue operations in the Exclusion Zone, by definition, will come under the direction of the Hazardous Materials Group Supervisor. In addition to these primary functions, the Hazardous Materials Group Supervisor will work with an Assistant Safety Officer - Hazardous Materials, who must be present at the hazard site. The incident Safety Officer will have overall incident safety concerns, with the Assistant Safety Officer - Hazardous Materials working directly with the Hazardous Materials Group Supervisor. The Hazardous Materials Group Supervisor may also supervise one or more Technical Specialists providing technical support and information to the Group.

In support of a hazardous materials response, the Hazardous Materials Company can provide an incident with a high level of trained personnel and specialized equipment to perform safe and effective hazardous materials intervention. Remaining consistent with ICS resource use and supervision, a Hazardous Materials Company, when working with other emergency response resources, can be assigned as part of a Hazardous Materials Task Force.

Tactical operations outside of the controlled zones, as well as many other related functions, will be managed by other ICS positions. In most cases, the array of tactical objectives; such as evacuation, isolation, EMS, and traffic control, will be managed by Division/Group Supervisors. Other incident management needs will be met by filling Command and General Staff positions.

MODULAR DEVELOPMENT

A series of examples of modular development are included to illustrate one method of expanding the incident organization.

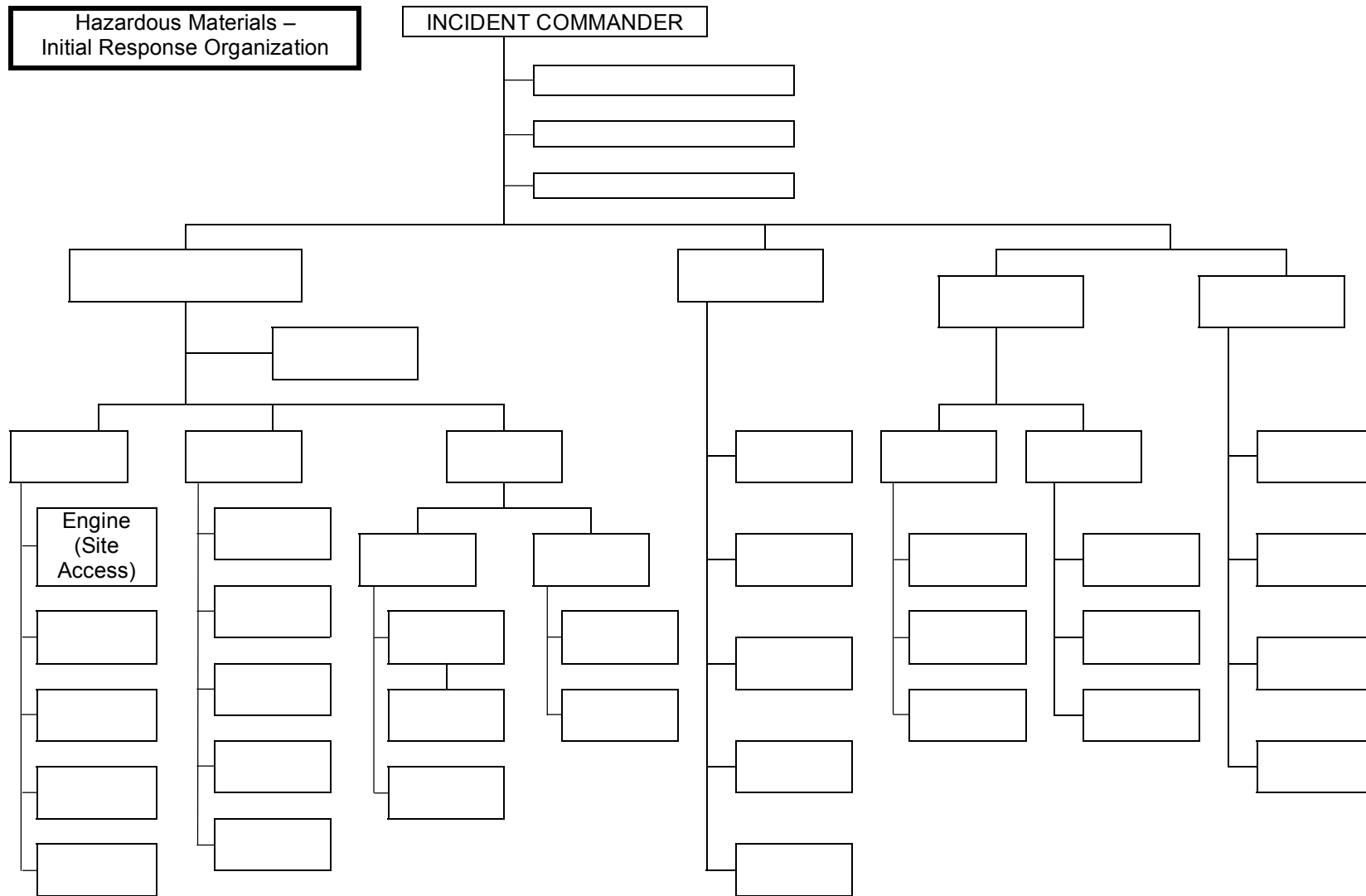
Initial Response Organization: Initial response resources are managed by the Incident Commander who will handle all Command and General Staff responsibilities.

Reinforced Response Organization: e.g., three to fifteen fire and/or law enforcement units.

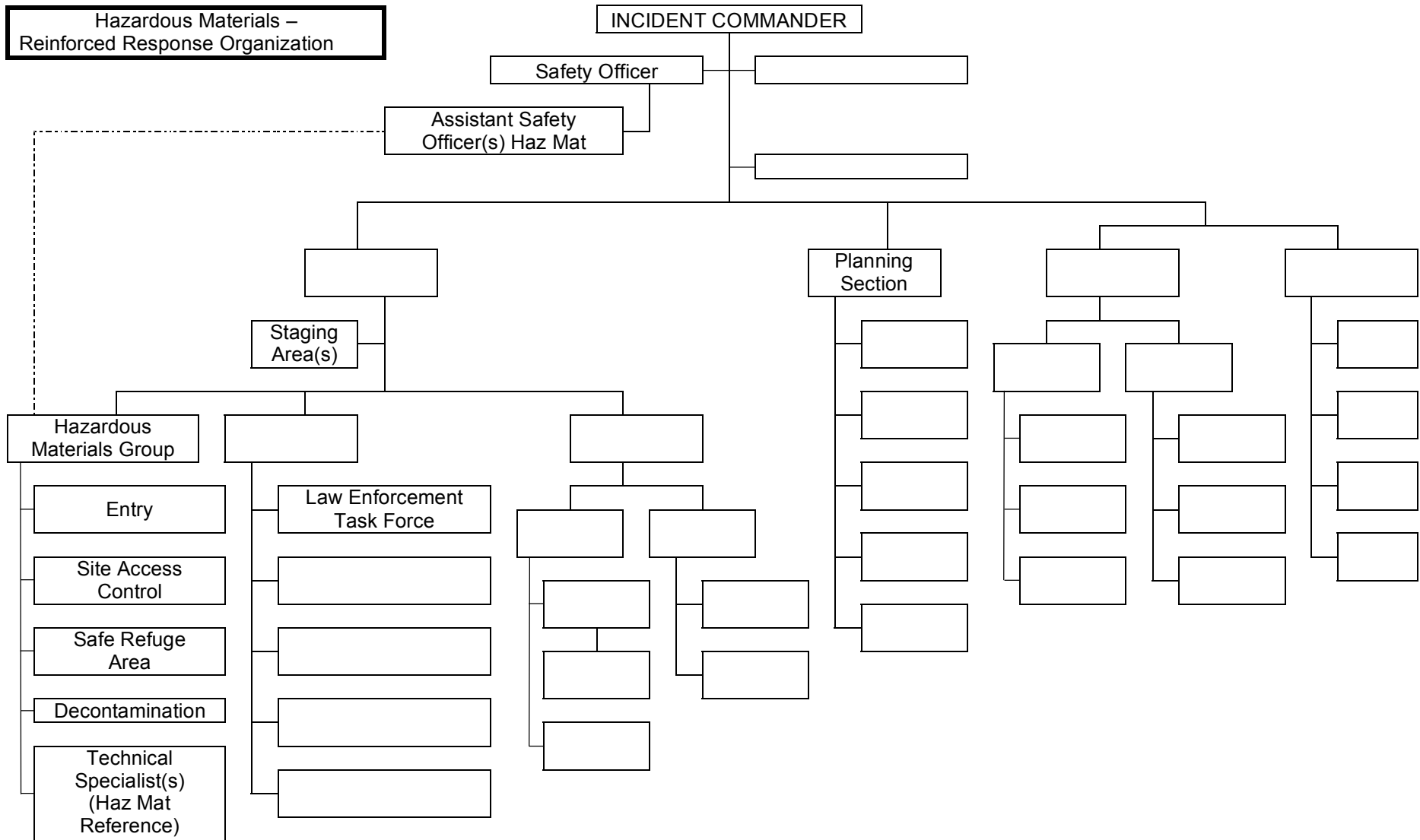
The two Incident Commanders have met and have established Unified Command. They have established a Hazardous Materials Group to manage all activities around the Control Zones and have organized Law Enforcement Units into a task force to isolate the operational area. The Incident Commanders have decided to establish a Planning Section, a Staging Area, and a Safety Officer.

Multi-Group Organization: The Incident Commanders have activated most Command and General Staff positions and have established a combination of groups.

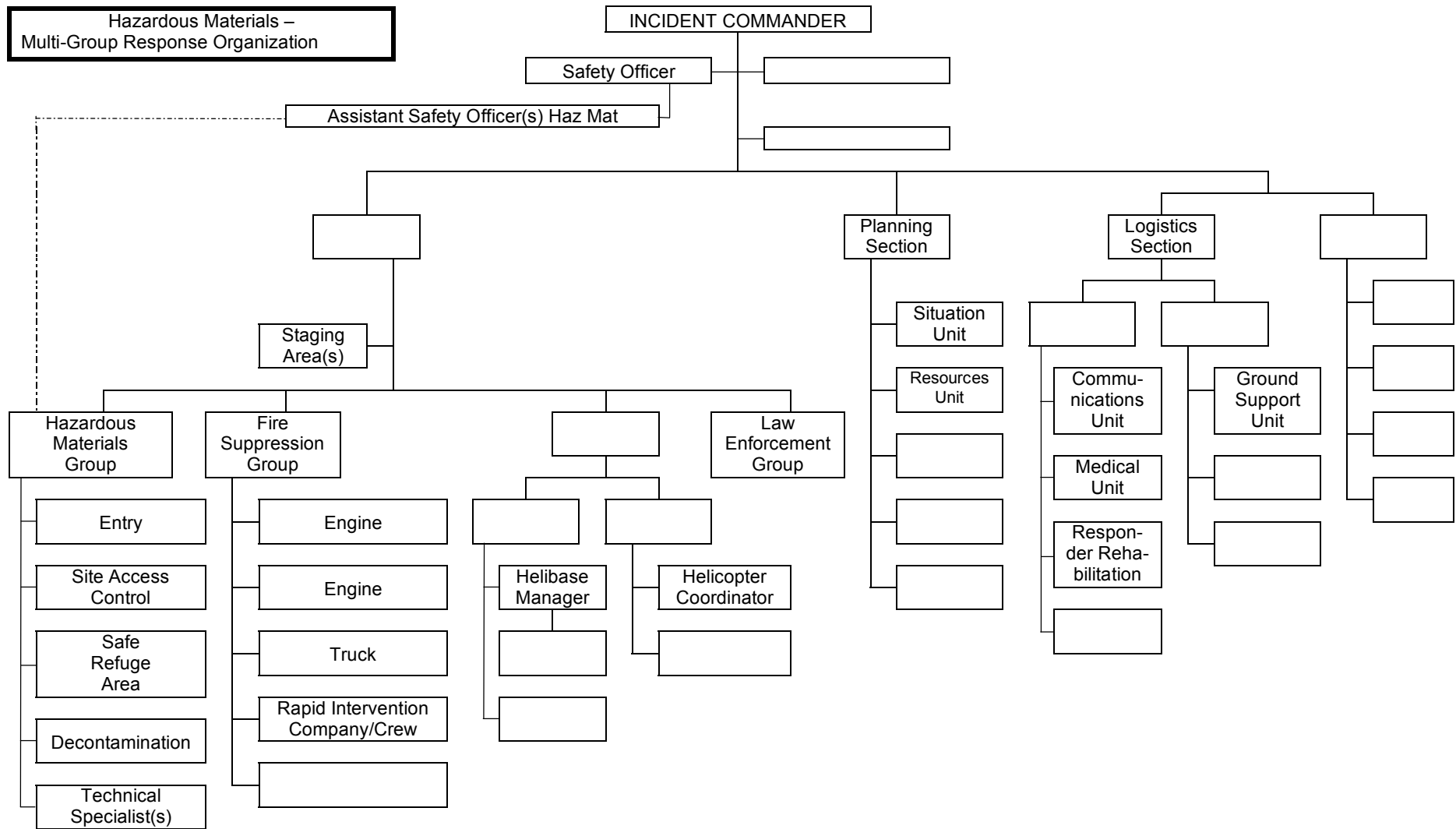
Multi-Branch Organization: The Incident Commanders have activated all Command and General Staff positions, and have established four branches in the Operations Section.



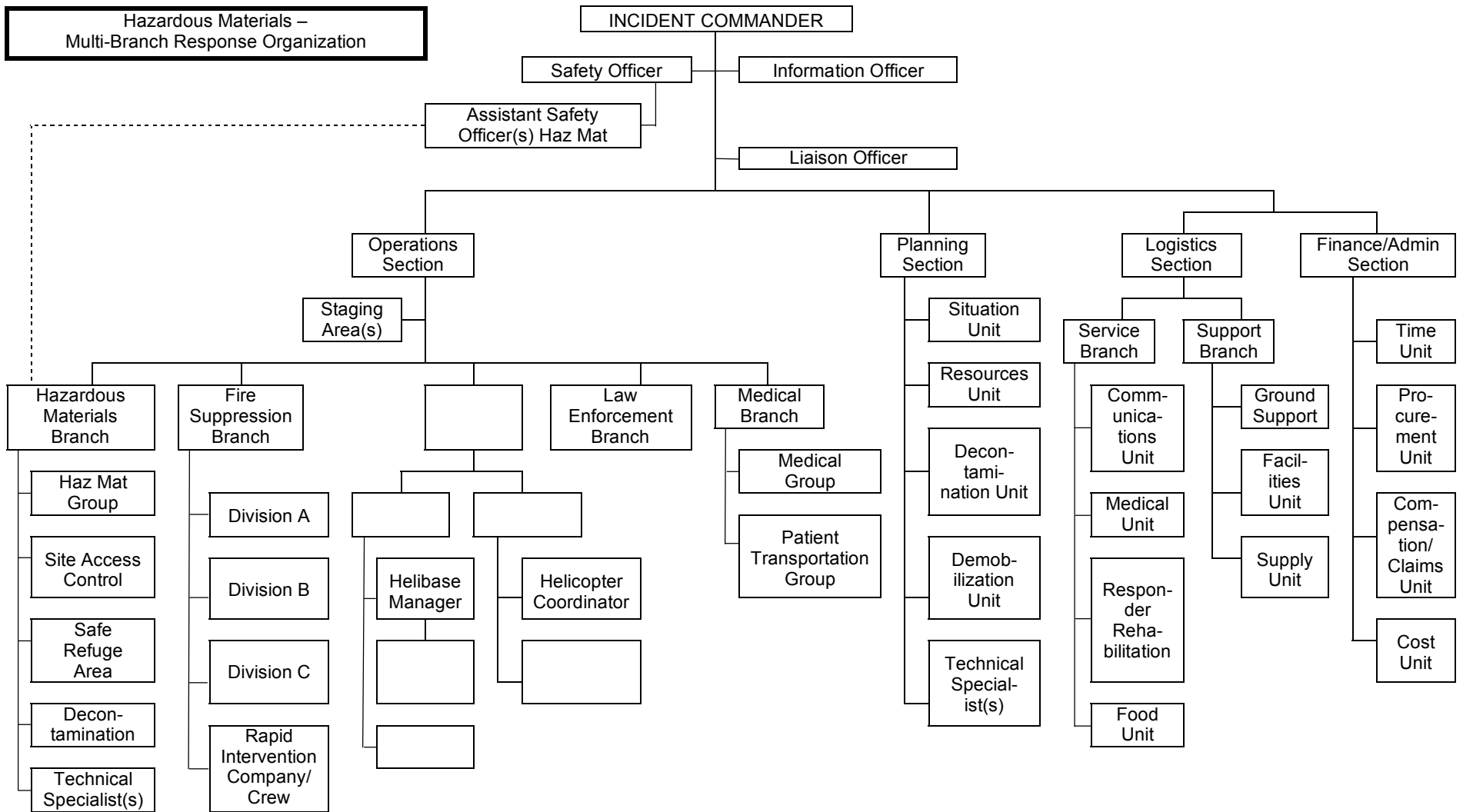
Hazardous Materials – Initial Response Organization: The Engine Company has arrived to find a release of a Hazardous Materials and is initiating immediate actions to isolate the area (Site Access). In addition, the Company Officer has assumed Incident Command and is ordering additional resources.



Hazardous Materials – Reinforced Response Organization: The Hazardous Materials response has been reinforced and a Hazardous Materials Group has been established to deal with the release. Law Enforcement responsibilities of scene security and crowd control will be assessed and handled by a Law Enforcement Group. The Planning Section Chief will accomplish initial planning and resource tracking.



Hazardous Materials – Multi-Group Response Organization: Additional resources have arrived and the incident Commander has established a Fire Suppression Group to address other risks on the incident. Aviation resources are assigned and appropriate supervision is established. Planning and Logistics Sections are partially established. An Assistant Safety Officer is specifically assigned to the Hazardous Materials Group.



Hazardous Materials – Multi-Branch Response: In this case, the incident now includes more than just a Hazardous Materials release. Therefore, the complexity of the incident requires an Operations Section Chief be assigned as well as the balance of the Command and General Staff positions. Operational control is now enhanced by the assignment of Branch Directors.

HAZARDOUS MATERIALS POSITION DESCRIPTIONS AND FUNCTIONS

HAZARDOUS MATERIALS GROUP SUPERVISOR - The Hazardous Materials Group Supervisor reports to the Operations Section Chief or Branch Director (if activated). The Hazardous Materials Group Supervisor is responsible for the implementation of the phases of the Incident Action Plan dealing with the Hazardous Materials Group operations. The Hazardous Materials Group Supervisor is responsible for the assignment of resources within the Hazardous Materials Group, reporting on the progress of control operations and the status of resources within the Hazardous Materials Group. The Hazardous Materials Group Supervisor directs the overall operations of the Hazardous Materials Group.

- A. Check in and obtain briefing from the Operations Section Chief or Branch Director (if activated).
- B. Ensure the development of Control Zones and Access Control Points and the placement of appropriate control lines.
- C. Evaluate and recommend public protection action options to the Operations Section Chief or Branch Director (if activated).
- D. Ensure that current weather data and future weather predictions are obtained.
- E. Establish environmental monitoring of the hazard site for contaminants.
- F. Ensure that a written Site Safety and Control Plan (ICS Form 208) is developed and implemented.
- G. Conduct safety meetings with the Hazardous Materials Group.
- H. Participate, when requested, in the development of the Incident Action Plan.
- I. Ensure that recommended safe operational procedures are followed.
- J. Ensure that the proper Personal Protective Equipment is selected and used.
- K. Ensure that the appropriate agencies are notified through the Incident Commander.
- L. Maintain Unit/Activity Log (ICS Form 214).

ENTRY LEADER - The Entry Leader reports to the Hazardous Materials Group Supervisor. The Entry Leader is responsible for the overall entry operations and all assigned personnel working within the Exclusion Zone.

- A. Check in and obtain briefing from the Hazardous Materials Group Supervisor.
- B. Supervise entry operations.
- C. Recommend actions to mitigate the situation within the Exclusion Zone.
- D. Implement actions, as directed by the Hazardous Materials Group Supervisor, to mitigate the hazardous materials release or threatened release.
- E. Maintain communications and coordinate operations with the Decontamination Leader.
- F. Maintain communications and coordinate operations with the Site Access Control Leader and the Safe Refuge Area Manager (if activated).
- G. Maintain communications and coordinate operations with Technical Specialist - Hazardous Materials Reference.
- H. Maintain control of the movement of people and equipment within the Exclusion Zone, including contaminated victims.
- I. Direct rescue operations, as needed, in the Exclusion Zone.
- J. Maintain Unit/Activity Log (ICS Form 214).

DECONTAMINATION LEADER - The Decontamination Leader reports to the Hazardous Materials Group Supervisor. The Decontamination Leader is responsible for the operations of the decontamination element, providing decontamination as required by the Incident Action Plan.

- A. Check in and obtain briefing from the Hazardous Materials Group Supervisor.
- B. Establish the Contamination Reduction Corridor(s).
- C. Identify contaminated people and equipment.
- D. Supervise the operations of the decontamination element in the process of decontaminating people and equipment.
- E. Maintain control of movement of people and equipment within the Contamination Reduction Zone.
- F. Maintain communications and coordinate operations with the Entry Leader.
- G. Maintain communications and coordinate operations with the Site Access Control Leader and the Safe Refuge Area Manager (if activated).
- H. Coordinate the transfer of contaminated patients requiring medical attention (after decontamination) to the Medical Group.
- I. Coordinate handling, storage, and transfer of contaminants within the Contamination Reduction Zone.
- J. Maintain Unit/Activity Log (ICS Form 214).

SITE ACCESS CONTROL LEADER - The Site Access Control Leader reports to the Hazardous Materials Group Supervisor. The Site Access Control Leader is responsible for the control of the movement of all people and equipment through appropriate access routes at the hazard site and ensures that contaminants are controlled and records are maintained.

- A. Check in and obtain briefing from the Hazardous Materials Group Supervisor.
- B. Organize and supervise assigned personnel to control access to the hazard site.
- C. Oversee the placement of the Exclusion Control Line and the Contamination Control Line.
- D. Ensure that appropriate action is taken to prevent the spread of contamination.
- E. Establish the Safe Refuge Area within the Contamination Reduction Zone. Appoint a Safe Refuge Area Manager (as needed).
- F. Ensure that injured or exposed individuals are decontaminated prior to departure from the hazard site.
- G. Track the movement of persons passing through the Contamination Control Line to ensure that long term observations are provided.
- H. Coordinate with the Medical Group for proper separation and tracking of potentially contaminated individuals needing medical attention.
- I. Maintain observations of any changes in climatic conditions or other circumstances external to the hazard site.
- J. Maintain communications and coordinate operations with the Entry Leader.
- K. Maintain communications and coordinate operations with the Decontamination Leader.
- L. Maintain Unit/Activity Log (ICS Form 214).

ASSISTANT SAFETY OFFICER - HAZARDOUS MATERIALS - The Assistant Safety Officer - Hazardous Materials reports to the incident Safety Officer as an Assistant Safety Officer and coordinates with the Hazardous Materials Group Supervisor or Hazardous Materials Branch Director if (activated). The Assistant Safety Officer - Hazardous Materials coordinates safety related activities directly relating to the Hazardous Materials Group operations as mandated by 29 CFR part 1910.120 Appendix C and applicable state and local laws. This position advises the Hazardous Materials Group Supervisor or Hazardous Materials Branch Director (if activated) on all aspects of health and safety and has the authority to stop or prevent unsafe acts. It is mandatory that an Assistant Safety Officer - Hazardous Materials be appointed at all hazardous materials incidents. In an incident involving multiple emergency activities the Assistant Safety Officer - Hazardous Materials does not act as the overall incident Safety Officer.

- A. Check in and obtain briefing from the incident Safety Officer.
- B. Obtain briefing from the Hazardous Materials Group Supervisor or Hazardous Materials Branch Director (if activated).
- C. Participate in the preparation, and implementation of a written Site Safety and Control Plan (ICS Form 208).
- D. Advise the Hazardous Materials Group Supervisor or Hazardous Materials Branch Director (if activated) of deviations from the Site Safety and Control Plan (ICS Form 208) or any dangerous situations.
- E. Has full authority to alter, suspend, or terminate any activity that may be judged to be unsafe in an IDLH condition and/or involve an imminent danger.
- F. Ensure the protection of the Hazardous Materials Group or Hazardous Materials Branch (if activated) personnel from physical, environmental, and chemical hazards/exposures.
- G. Ensure the provision of required emergency medical services for assigned personnel and coordinate with the Medical Unit Leader.
- H. Ensure that medical related records for the Hazardous Materials Group or Hazardous Materials Branch (if activated) personnel are maintained.
- I. Maintain Unit/Activity Log (ICS Form 214).

TECHNICAL SPECIALIST - HAZARDOUS MATERIALS REFERENCE - The Technical Specialist - Hazardous Materials Reference reports to the Hazardous Materials Group Supervisor. This position provides technical information and assistance to the Hazardous Materials Group using various reference sources such as computer databases, technical journals, CHEMTREC, and contact with facility representatives. The Technical Specialist - Hazardous Materials Reference may provide product identification using hazardous categorization tests and/or any other means of identifying unknown materials.

- A. Check in and obtain briefing from the Planning Section Chief.
- B. Obtain briefing from the Hazardous Materials Group Supervisor.
- C. Provide technical support to the Hazardous Materials Group.
- D. Maintain communications and coordinate operations with the Entry Leader.
- E. Provide and interpret environmental monitoring information.
- F. Provide analysis of hazardous material sample(s).
- G. Determine Personal Protective Equipment compatibility to hazardous material.
- H. Provide technical information of the incident for documentation.
- I. Provide technical information management with public and private agencies i.e.: Poison Control Center, Tox Center, CHEMTREC, State Department of Food and Agriculture, National Response Team.
- J. Assist Planning Section with projecting the potential environmental effects of the release.
- K. Maintain Unit/Activity Log (ICS Form 214).

SAFE REFUGE AREA MANAGER - The Safe Refuge Area Manager reports to the Site Access Control Leader and coordinates with the Decontamination Leader and the Entry Leader. The Safe Refuge Area Manager is responsible for evaluating and prioritizing victims for treatment, collecting information from the victims, and preventing the spread of contamination by these victims. If there is a need for the Safe Refuge Area Manager to enter the Contamination Reduction Zone in order to fulfill assigned responsibilities then the appropriate Personal Protective Equipment shall be worn.

- A. Check in and obtain briefing from the Site Access Control Leader.
- B. Establish the Safe Refuge Area.
- C. Monitor the hazardous materials release to ensure that the Safe Refuge Area is not subject to exposure.
- D. Assist the Site Access Control Leader by ensuring the victims are evaluated for contamination.
- E. Manage the Safe Refuge Area.
- F. Maintain communications with the Entry Leader.
- G. Maintain communications with the Decontamination Leader.
- H. Maintain Unit/Activity Log (ICS Form 214).

ASSISTING AGENCIES IN HAZARDOUS MATERIALS INCIDENT

LAW ENFORCEMENT - The local law enforcement agency will respond to most Hazardous Materials incidents. Depending on incident factors, law enforcement may be a partner in Unified Command or may participate as an assisting agency. Some functional responsibilities that may be handled by law enforcement are:

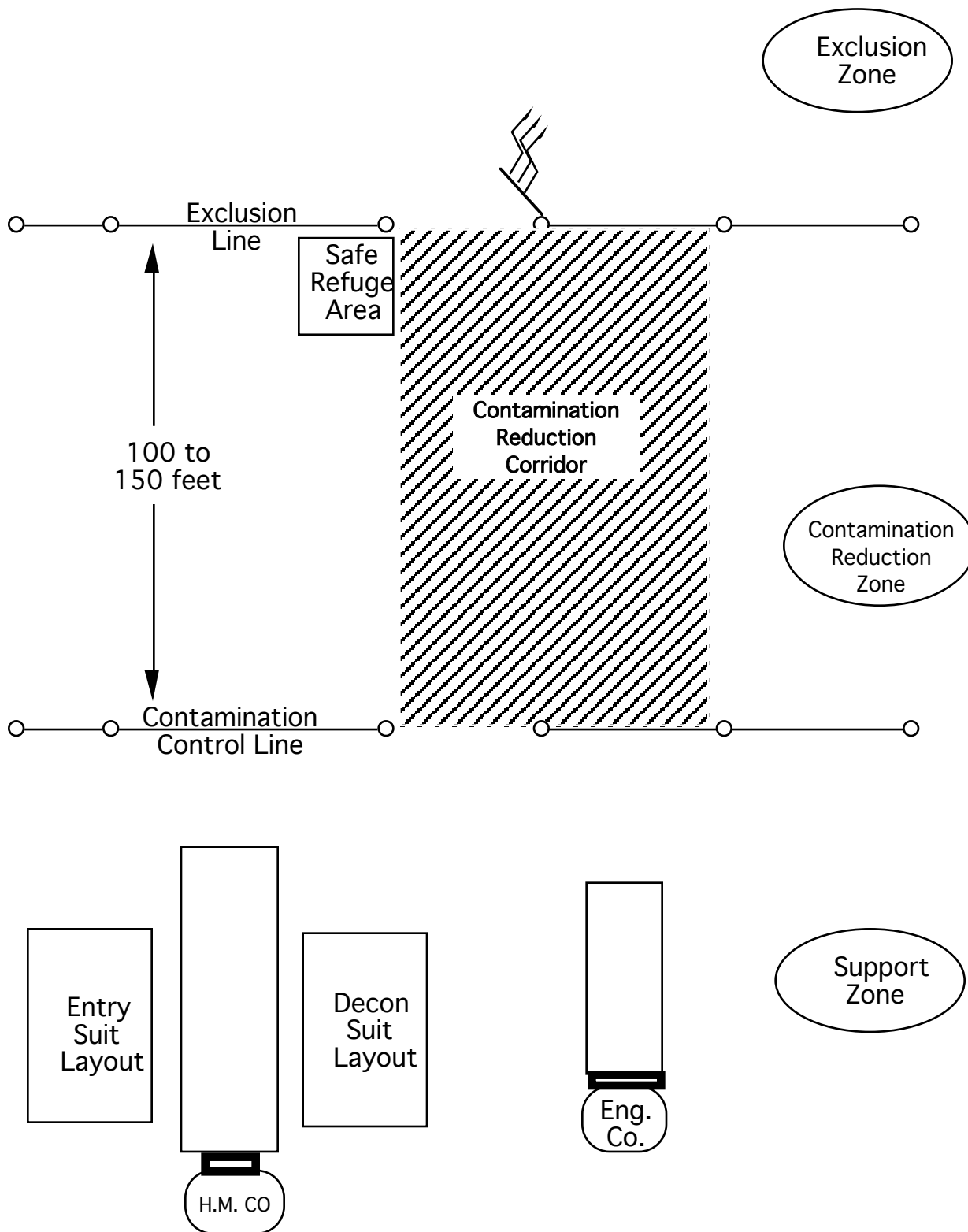
- A. Isolate the incident area.
- B. Manage crowd control.
- C. Manage traffic control.
- D. Manage public protective action.
- E. Provide Incident Command for highway/street/road incidents.
- F. Manage criminal investigations.

ENVIRONMENTAL HEALTH AGENCIES - In most cases the local or state environmental health agency will be at the scene as a partner in Unified Command. Some functional responsibilities that may be handled by environmental health agencies are:

- A. Determine the identity and nature of the hazardous materials.
- B. Establish the criteria for clean-up and disposal of the hazardous materials.
- C. Declare the site safe for re-entry by the public.
- D. Provide the medical history of exposed individuals.
- E. Monitor the environment.
- F. Supervise the clean-up of the site.
- G. Enforce various laws and acts.
- H. Determine legal responsibility.
- I. Provide technical advice.
- J. Approve funding for the clean up.

CIVIL SUPPORT TEAM (CST) – The California National Guard (CNG) Weapons of Mass Destruction Civil Support Teams (CST) are designed to support local incident commanders and local emergency first responders twenty-four hours a day, seven days per week for any Weapons of Mass Destruction (WMD) terrorist event.

Control Zone Layout



GLOSSARY OF TERMS

- 29 CFR PART 1910.120 (q)** -- 29 of the Code of Federal Regulations, Part 1910.120 (q) is the Hazardous Waste Operations and Emergency Response reference document as required by SARA. This document covers employees involved in certain hazardous waste operations and any emergency response to incidents involving hazardous situations. Federal OSHA enforces this code.
- ACCESS CONTROL POINT** -- The point of entry and exit from the control zones. Regulates access to and from the work areas.
- CHEMTREC** -- Chemical Transportation Emergency Center. A public service of the Chemical Manufacturers Association.
- COMPATIBILITY** -- The matching of Personal Protective Equipment (PPE) to the hazardous materials involved in order to provide the best protection for the worker.
- CONTAMINATION REDUCTION CORRIDOR (CRC)** -- That area within the Contamination Reduction Zone where the actual decontamination is to take place. Exit from the Exclusion Zone is through the Contamination Reduction Corridor (CRC). The CRC will become contaminated as people and equipment pass through to the decontamination stations.
- CONTAMINATION CONTROL LINE** -- The established line around the Contamination Reduction Zone that separates the Contamination Reduction Zone from the Support Zone.
- CONTAMINATION REDUCTION ZONE (CRZ)** -- That area between the Exclusion Zone and the Support Zone. This zone contains the Personnel Decontamination Station. This zone may require a lesser degree of personnel protection than the Exclusion Zone. This area separates the contaminated area from the clean area and acts as a buffer to reduce contamination of the clean area.

CONTROL ZONES

- The geographical areas within the control lines set up at a hazardous materials incident. The three zones most commonly used are the Exclusion Zone, Contamination Reduction Zone, and Support Zone.

DECONTAMINATION (DECON)

- That action required to physically remove or chemically change the contaminants from personnel and equipment.

ENVIRONMENTAL

- Atmospheric, Hydrologic and Geologic media (air, water and soil).

EXCLUSION ZONE

- That area immediately around the spill. That area where contamination does or could occur. The innermost of the three zones of a hazardous materials site. Special protection is required for all personnel while in this zone.

EVACUATION

- The removal of potentially endangered, but not yet exposed, persons from an area threatened by a hazardous materials incident. Entry into the evacuation area should not require Personal Protective Equipment (PPE).

HAZARDOUS CATEGORIZATION TEST (HAZ CAT)

- A field analysis to determine the hazardous characteristics of an unknown material.

HAZARDOUS MATERIAL

- Any material which is explosive, flammable, poisonous, corrosive, reactive, or radioactive, or any combination, and requires special care in handling because of the hazards it poses to public health, safety, and/or the environment.

HAZARDOUS MATERIALS COMPANY

- Any piece of equipment having the capabilities, PPE, equipment, and complement of personnel as specified in the Hazardous Materials Company Types and Minimum Standards found in the Field Operations Guide (ICS-420-1). The personnel complement shall include one member who is trained to a minimum level of Assistant Safety Officer - Hazardous Materials (ICS-HM-222-5).

HAZARDOUS MATERIALS INCIDENT

- Uncontrolled, unlicensed release of hazardous materials during storage or use from a fixed facility or during transport outside a fixed facility that may impact the public health, safety and/or environment.

HAZARDOUS MATERIALS TASK FORCE

- A group of resources which includes at least one Hazardous Materials Company, with common communications and a leader. A hazardous Materials Task Force may be pre-established and sent to an incident, or formed at the incident.

MITIGATE

- Any action employed to contain, reduce or eliminate the harmful effects of a spill or release of a hazardous substance.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

- That equipment and clothing required to shield or isolate personnel from the chemical, physical, and biologic hazards that may be encountered at a hazardous materials incident.

REFUGE AREA

- An area identified within the Exclusion Zone, if needed, for the assemblage of contaminated individuals in order to reduce the risk of further contamination or injury. The Refuge Area may provide for gross decontamination and triage.

RESCUE

- The removal of victims from an area determined to be contaminated or otherwise hazardous. Rescue shall be performed by emergency personnel using appropriate Personal Protective Equipment (PPE).

SAFE REFUGE AREA

- An area within the Contamination Reduction Zone for the assemblage of individuals who are witnesses to the hazardous materials incident or who were on site at the time of the spill. This assemblage will provide for the separation of contaminated persons from non-contaminated persons.

SITE

- That area within the Contamination Reduction Control Line at a hazardous materials incident.

SITE SAFETY AND CONTROL PLAN

- A written plan describing the general safety procedures to be followed at an incident involving hazardous materials. This plan should be prepared in accordance with 29 CFR 1910.120 Appendix C and the U.S. Environmental Protection Agency's "Standard Operating Safety Guides for Environmental Incidents (1984)".

SUPPORT ZONE

- The clean area outside of the Contamination Control Line. Equipment and personnel are not expected to become contaminated in this area. Special personal protective clothing is not required. This is the area where resources are assembled to support the hazardous materials operation.

HAZARDOUS MATERIALS COMPANY TYPES COMPANY TYPING AND MINIMUM STANDARDS

Components	Type I	Type II	Type III
Field Testing	Known Chemicals	Known Chemicals	Known Chemicals
	Unknown Chemicals	Unknown Chemicals	
	WMD Chem / Bio		
Air Monitoring	Combustible Gas Oxygen Carbon Monoxide Hydrogen Sulfide	Combustible Gas Oxygen Carbon Monoxide Hydrogen Sulfide	Combustible Gas Oxygen Carbon Monoxide Hydrogen Sulfide
	Specialty Gases Hydrocarbon Liquid Vapors	Specialty Gases Hydrocarbon Liquid Vapors	
	WMD Chem / Bio		
Sampling: Capturing Labeling Evidence Collection	Known Chemicals	Known Chemicals	Known Chemicals
	Unknown Chemicals	Unknown Chemicals	
	WMD Chem / Bio		
Radiation Monitoring And Detection	Gamma	Gamma	Gamma
	Beta	Beta	
	Alpha	Alpha	
	Radio Nuclei		
Chemical Protective Clothing: Ensembles	Liquid-Splash Protective	Liquid-Splash Protective	Liquid-Splash Protective
	Vapor Protective	Vapor Protective	
	Flash Fire Vapor Protective	Flash Fire Vapor Protective	
	WMD Chem / Bio Vapor Protective		
	WMD Chem / Bio Liquid Splash Protective		
Chemical Protective Clothing: Gloves - Boots	NFPA Compliant Replacement	NFPA Compliant Replacement	NFPA Compliant Replacement
	Hi-Temp. Protective Gloves Cryogenic Protective Gloves	Hi-Temp. Protective Gloves Cryogenic Protective Gloves	

Components	Type I	Type II	Type III
	Radiation Protection Gloves		
Technical Reference	Printed and Electronic	Printed and Electronic	Printed and Electronic
	Plume Air Modeling, Map Overlays	Plume Air Modeling, Map Overlays	
	WMD Chem / Bio Sources		
Special Capabilities	Heat Sensing	Heat Sensing	
	Night Vision	Night Vision	
	Digital Photo	Digital Photo	
	Digital Video		
Intervention	Diking, Damming, Absorption	Diking, Damming, Absorption	Diking, Damming, Absorption
	Liquid, Solid Leak Intervention	Liquid, Solid Leak Intervention	Liquid, Solid Leak Intervention
	Vapor Leak Intervention	Vapor Leak Intervention	
	Neutralization, Plugging, Patching	Neutralization, Plugging, Patching	
	WMD Chem / Bio Spill Containment		
Decontamination Responder	Known Chemicals	Known Chemicals	Known Chemicals
	Unknown Chemicals	Unknown Chemicals	
	WMD Chem / Bio		
Communications	In-Suit	In-Suit	In-Suit
	Cell Phone	Cell Phone	Cell Phone
	Wireless Fax, Copy, Web Access	Wireless Fax, Copy, Web Access	

Components	Type I	Type II	Type III
Respiratory Protection	SCBA	SCBA	SCBA
	Umbilical Air Support		
	APR or PAPR, WMD Chem / Bio Compliant		
Personnel: Training & Staffing	Haz Mat Specialist ② WMD Chem / Bio ③ 7 ④	Haz Mat Specialist ② 5 ④	Haz Mat Technician ① 5 ④

1. All company personnel must meet the hazardous materials training requirements for Technician in CCR Title 19, Section 2520.
2. All company personnel must meet the hazardous materials training requirements for Specialist in CCR Title 19, Section 2520.
3. All company personnel must meet the training requirements for Hazardous Materials/ Weapons of Mass Destruction: Terrorism for Technician/Specialist. Training shall, at a minimum, meet or be equivalent to the requirements found in Title 19 CCR 2520 (ff).
4. One company member must meet training requirements for Hazardous Materials/Weapons of Mass Destruction: Assistant Safety Officer. Training shall, at a minimum, meet or be equivalent to the requirements found in Title 19 CCR 2520 (r).
5. The explanation of components and criteria document will be located in the Operations System Description and in the FIRESCOPE website (www.firescope.org).
6. Hazardous Materials Company: Any piece(s) of equipment having the capabilities, PPE, equipment, and complement of personnel as specified in the Hazardous Materials Company Types and Minimum Standards found in the Field Operations Guide (ICS 420-1).

APPENDIX A
OES HAZARDOUS MATERIALS EQUIPMENT LIST
2004 EDITION

(Available as a separate document in the FIREScope website at www.firescope.org)