Emergency Preparedness Planning

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Emergency Preparedness Planning

Agenda

8:30 am - 11:30 am
- Introductions
- Objectives
- Why plan for an emergency?
- Types of emergencies
- Risk & vulnerability
- Four elements of Emergency Response Plans
- Element One: Prevention
- Guest Speaker (optional)

11:30 am - 12:30 pm
- Lunch

12:30 pm - 4:00 pm
- Element two: Preparedness
- Element three: Response
- Element four: Recovery
- Scenario exercises
- Emergency Preparedness (topic) research project/presentation

4:00 pm - 4:30 pm
- Review session
- Objectives revisited
- Q&A
- Website demos (optional)
- Evaluations
Resources Available from the Division of Safety & Hygiene (DSH) Libraries

(800) 644-6292    (614) 466-7388
library@bwc.state.oh.us
www.ohiobwc.com

Safety training:
- Safety talks, outlines and scripts - DSH Safety leader’s discussion guide, Training Center’s One-hour safety presentations, reference books, web resources
- Videos – hundreds of safety and health topics
- Books and articles on training techniques

Machine and equipment safety:
- Safety standards (ANSI, NFPA, CGA)
- Books and articles on power presses, material handling equipment, lockout/tagout, etc.

Sample written programs:
- DSH program profiles and sample written programs
- Reference books
- Internet resources

Illness and injury statistics:
- Statistics from the U.S. Bureau of Labor Statistics
- National Safety Council’s Injury Facts
- National Institute of Occupational Safety & Health (NIOSH) studies

Hazard communication and chemical safety:
- Chemical safety information
- Material safety data sheets (MSDSs)
- Sample written programs
- Videos
- Internet resources

Safety standards
- American National Standards Institute (ANSI) standards (including standards for construction, machinery and equipment, personal protective equipment)
- National Fire Protection Association (NFPA) fire codes (including the Life Safety Code and the National Electrical Code)
- Compressed Gas Association (CGA) standards

Other topics of interest (books, articles, magazines, videos and standards):
- Confined spaces
- Electrical safety
- Job safety analysis
- New employee orientation
- Powered industrial trucks
- Respiratory protection
- Scaffolds
- Spill response

Directories and lists of vendors of safety equipment

Occupational Safety & Health Administration (OSHA) regulations

Manual of Uniform Traffic Control Devices (MUTCD)

Recommendations of useful Internet sites

BWC publications
Saving You Time and Research

Requests for copies of OSHA standards, information on starting a safety committee, a video on accident investigation techniques -- these are some of the thousands of inquiries BWC’s Division of Safety & Hygiene (DSH) libraries receive each year.

DSH has two libraries to serve you:
- The central library in the William Green Building in downtown Columbus;
- The resource center and video library located at the Ohio Center for Occupational Safety and Health (OCOSH) in Pickerington.

Both libraries are open 8 a.m. to 7:22 p.m., Monday through Friday. Your need for information does not require a visit to the library. You can phone, fax, or e-mail your requests and receive a quick response.

The central library provides free information services on the topics of occupational safety and health, workers’ compensation and rehabilitation.

The OCOSH resource center provides similar services for those who visit OCOSH for meetings and training center classes.

The video library offers an extensive collection of videotapes to supplement your organization’s safety and health training program. It is a convenient and popular source for Ohio employers to borrow quality occupational safety- and health-related training aids.


Central Library
30 W. Spring St., Third Floor
Columbus OH 43215-2256
1-800-OHIOBWC
(614) 466-7388
(614) 644-9634 (fax)
library@bwc.state.oh.us

OCOSH Resource Center
13430 Yarmouth Drive
Pickerington OH 43147
1-800-OHIOBWC
Resource center (614) 728-6464
Video library (614) 644-0018
BWC Office Locations

Ohio Center for Occupational Safety & Health (OCOSH)
13430 Yarmouth Drive
Pickerington, OH 43147
1-800-OHIO BWC
(Follow the prompts)
(614) 995-8622
Safety@bwc.state.oh.us

Cambridge
61501 Southgate Parkway
Cambridge, OH 43725
(740) 435-4210

Canton
400 Third St. S.E.
Canton, OH 44701-4801
(330) 471-0397

Cleveland
615 W. Superior Ave.
6th Floor
Cleveland, OH 44113
(216) 787-3060

Columbus
30 W. Spring St.
11th Floor
Columbus, OH 43215
(614) 752-4538

Dayton
3401 Park Center Drive
Dayton, OH 45414
(800-862-7768
(937) 264-5230

Garfield Heights
4800 E. 131st St.
Garfield Heights, OH
44105
(216) 584-0115

Governor's Hill
8650 Governor’s Hill Dr.
4th Floor
Cincinnati, OH 45249
(513) 583-4403

Hamilton
One Renaissance Center
345 High St.
Hamilton, OH 45011
(513) 785-4510

Lima
2025 E. Fourth St.
Lima, OH 45804
(419) 227-4116

Logan
1225 W. Hunter St.
Logan, OH 43138
(740) 385-9848

Mansfield
240 Tappan Drive N.
Mansfield, OH 44906
(419) 529-4528

Portsmouth
1005 Fourth St.
Portsmouth, OH 45662
(740) 353-3419

Toledo
1 Government Center
12th Floor
Toledo, OH 43604
(419) 245-2474

Youngstown
242 Federal Plaza W.
Suite 200
Youngstown, OH 44503
(330) 797-5010
Instructions for Downloading Materials from BWC’s Learning Center

1. Go to: www.bwclearningcenter.com
2. Log in using your username and password
   a. If you have forgotten your username and password call 1-800-OHIOBWC
3. Click the “Team Center” building
4. Click “Team Rooms”
5. Type “Emergency” in the keyword field and click search
6. Click the “Emergency Preparedness Planning” team room which should be the first team room listed
7. Click “Content” listed in the Team Room Tools
8. Click on the document that you wish to view/download
   a. Websites are available to click for easy access to online resources
   b. Students and instructors are also able to submit resources that might be useful to other team members
   c. Instructor PowerPoint that may not be in manual will be available to download
9. Log off when finished
Sign In Sheet

Please check these for accuracy:
• Address
• Telephone number
• Company name
• E-mail address
Is everything spelled correctly?
Don't forget your signature!

Name Tent

Please WRITE your name
BIG
(on both sides, please)
General Overview

Breakroom
- Pay Phones
- Message Board
- Coffee
- Vending Machines
- Refrigerator
- Can Recycling

Cell Phones
Restrooms

Smoking Area

Please respect our smoking policy

Manual
OCOSH Libraries

Library

DVD and Video Library

Why are You Here?

Course Objectives

You will Learn:

• An all-hazard approach to emergency planning
• Main components of an emergency plan
• Structured approach to emergency preparedness planning
• Skills to develop a plan
Workplace Emergency

An unforeseen situation that threatens your employees, customers, or the public, disrupts or shuts down your operations, or causes physical or environmental damage.

Imagine that a tornado strikes your community. What do you do?

Why Plan for an Emergency or Crisis?

• Emergencies or crises of all shapes and sizes occur on a daily basis
• Emergencies or crises have significant impact
  ➢ Physical
  ➢ Emotional
  ➢ Educational
Why Plan for an Emergency or Crisis?

- Effective planning will reduce the level of chaos that occurs in an emergency
- Self-reliance:
  - In event of a significant emergency or crisis, reaction time is essential
  - Survival of your business

OSHA Requirements

General Requirements for all Workplaces

- Emergency action plans (EAP) [29 CFR 1910.38] [29 CFR 1926.35]
- Portable fire extinguishers [29 CFR 1910.157]
- Fire detection systems [29 CFR 1910.164]
- Fixed extinguishing systems [29 CFR 1910.160] [29 CFR 1926.150]
- Fire prevention plans (FPP) [29 CFR 1910.39] [29 CFR 1926.151]
General Requirements for all Workplaces

**Design and construction requirements for exit routes**
[29 CFR 1910.36]

**Maintenance, safeguards, & operational features for exit routes**
[29 CFR 1910.37]

**Medical services & first aid**
[29 CFR 1910.151][29 CFR 1926.50]

**Employee alarm systems**
[29 CFR 1910.165]

---

**General Requirements for all Workplaces**

- NFPA Life Safety Code
- Others???

---

**Types Of Emergencies**

- Natural
- Environmental
- Human Engineering
- Technical
Types Of Emergencies

Exercise

Natural

- Fire
- Tornado
- Flood
- Severe Weather
- Earthquake
- Pandemics

Environmental

- Loss of Power
- Loss of Communications
- Hazardous Material Release
- Explosion
Technical

- Network Failure
- Software Failure
- Viruses
- Machinery Failure

---

Human Engineering

- Workplace Violence
- Sabotage/Arson
- Terrorism

---

Contingency Planning

- List what types of unforeseen events could potentially occur
- Categorize what could happen
- Natural / Weather Related / Fire
- Environmental / Chemical / Electrical Outage
- Terrorism / Workplace Violence
- Technical / Mainframe or server damage
**Hazard Vulnerability Analysis**

- Probability
- Response
- Human impact
- Property impact
- Business impact
- Preparedness
- Internal resources
- External resources

**Risk Probability Chart**

**Example**

How Will Your Business Survive?

- After a business interruption?
- If property damage occurs?
- At a remote location?
- Loss of employees?
Planning for Emergencies

Four Elements Of An Emergency Response Plan

Element #1

- Prevention
  - Identify risks/vulnerabilities
  - Implement preventive measures
  - Assess needs and resources
  - Identify stakeholders
Fire/Chemical/Explosion

- Housekeeping
- Hazard Identification
- Fire Extinguishers
- Water Suppression Systems
- Hot Work Permits
- Inspections

Explosion

- Identify and prevent conditions
- Properly store materials
- Labels should be well maintained and legible

Hazard Recognition

Identification & Prevention

- Chemicals should be stored properly
- Labels should be well maintained and legible
**Hazard Identification**

- Labels and placards
- Material Safety Data Sheets (MSDS)
- Shipping papers

**Chemical Hazard Labeling:**

- There are many different types of labels used in the chemical industry
- NFPA 704- (Bulk Tank storage)
- DOT- Hazardous Materials, in commerce transportation
- HMIS- Hazard Material ID System
- RCRA Hazardous Waste-Generator Requirements

**Pandemics: Influenza**

- Annual deaths: 36,000*
- Hospitalizations: >200,000*
  
  * Average annual estimates during the 1990’s
- Who is at greatest risk for serious complications?
  - persons 65 and older
  - persons with chronic diseases
  - infants
  - pregnant women
  - nursing home residents

* Stats from OHIO Department of Health
American Deaths from Influenza Compared to U.S. Servicemen Killed in any War

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<td>300</td>
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<tr>
<td>1918-19 Influenza</td>
<td>500</td>
</tr>
<tr>
<td>WWII</td>
<td>600</td>
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<tr>
<td>Korean War</td>
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<tr>
<td>Vietnam War</td>
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</tbody>
</table>

Stats from OHIO Department of Health

All Workplaces

- Joint DOL/HHS document
- Released: February 6, 2007
- Available at:
- Additional information:

Steps Every Employer Can Take (part 1)

- Encourage sick employees to stay home.
- Social Distancing
- Encourage good hygiene practices (hand washing, cough/sneeze etiquette).
- Avoid close contact where possible (at least 6 feet).
- Keep work surfaces clean.
Steps Every Employer Can Take
(part 2)

• Discourage sharing of phones, desks, computers, etc.
• Minimize crowded situations (e.g. meetings).
• Reduce or eliminate unnecessary social interactions.
• Promote healthy lifestyle (nutrition, exercise, cessation).

What Can You Do?

Self-Evaluation of Symptoms

• On a daily basis, before leaving your house ask yourself:
  ➢ Do I have a fever?
  ➢ Do I have a sore throat?
  ➢ Am I coughing?
  ➢ Do my muscles ache?
  ➢ Do I feel ill?
• If you answered “yes” then:
  ➢ Do not report to work; stay at home
  ➢ Notify your supervisor as soon as possible
  ➢ Seek medical guidance

Personal Hygiene

• Respiratory Etiquette
  ➢ Sneeze/cough into a tissue and throw into trash
  ➢ If you do not have tissues, cough or sneeze into sleeve or arm, not your hands

• Hand Washing
  ➢ Wash your hands often
  ➢ Wash with soap (regular or antibacterial) and water for at least 20 seconds
  ➢ Carry alcohol-containing hand gels
  ➢ Wash always:
    ✓ Before and after preparing food or eating
    ✓ After using the restroom
    ✓ Before and after touching your nose, eyes, or mouth
    ✓ After touching items that may have been exposed to body fluids
**Network and Software Failure**

Viruses

- Consider policies to restrict removable storage devices
- Up to date virus protection
- Firewall
- Have data recovery plans

**Power & Machinery**

- Generators
- Back-up systems
- Plan ahead for outages
- Emergency shut-down & evacuation procedures
- Only trained personnel operate equipment

**Workplace Violence**

- Create and enforce policy
- Site security
- Documentation

[Image of VIOLENCE symbol]
Suspicious Behaviors

Be Aware of and Report:
- People in buildings or areas who do not appear to be conducting legitimate business (loitering, etc.)
- Unauthorized personnel in restricted, sensitive or private areas
- Persons requesting sensitive information

Terrorism

Seven Signs of Terrorism (know them):
- Surveillance
- Elicitation
- Tests of Security
- Acquiring Supplies
- Suspicious People
- Dry Runs
- Getting into Position

Recognition of WMD: CBNRE

- Chemical
- Biological
- Nuclear
- Radiological
- Explosive
Potential Outcomes for Terrorist CBRNE Event

- Thousands of casualties
- Residual contamination
- Overwhelmed emergency services
- Disrupted municipal functions
- Panic and confusion
- Loss of faith in the responders

Vehicles

- Controlling all access points
- Vehicle inspection before access to the property
- Prevention of abandoned or suspicious vehicles
- Parked / Unfamiliar vehicles

Sabotage/Arson

- Visitors log
- Closed circuit video
- Procedure to report suspicious behavior
Site Security and Control

• Boundary control measures (fences, security cameras and scheduled patrols)
• Control of all entry points within the facility

Prevention for Natural Disasters

• Building layout and construction
• Flood plain?
• Reinforce equipment
• Others?

Emergency Evacuation Routes

- Have multiple evacuation routes
- Primary and Secondary
- Mark evacuation routes (Signage)
Vital Records: Protection and Retention

- Personnel information
- Financial
- Client
- Essential data

Element #2

Preparedness
- Work with community partners to develop appropriate emergency management policies and procedures
- Clarify roles and responsibilities
- Provide training
- Conduct drills and exercises

Workplace Emergency Reporting and Alerting Employees

- Employees must know how to report emergencies
- "911" if applicable
- Local EMS numbers
- Appropriate internal reporting procedures
Reporting and Alerting Employees

What to think about:

- Determine how you will be notified of an emergency
- Determine how you can quickly notify employees, contractors, and customers on premises
- Identify designated shelter area for your building

Writing Your Plan

- Develop a checklist before you start the plan
- Mission Statement / Goals / Objectives
- Define types of emergency
- Emergency response plan for each
- Facilities / Property layout maps

Example Checklists

- http://www.montgomerycountymd.gov/content/hhs/phs/APC/apcnursinghomeassessment.pdf
Emergency Equipment Locations:

- Medical / First Aid Supplies
- Automatic External Defibrillator
- Medical Oxygen kits
- Fire Suppression equipment
- Portable extinguishers
- Other types
- Specialty equipment
- SCBA - Chemical protective garments

Writing Your Plan (con’t)

- Employee contact information
- Important contacts: OSHA, police, fire, etc.
- Aid agreements with outside sources
- Insurance policy/asset list
- Media relations
- Alternate facility

OSHA Website

OSHA Website

U.S. Department of Labor
Occupational Safety & Health Administration

www.osha.gov

Safety and Health Topics

Emergency Preparedness and Response

"Worker safety and health is a critical element of our nation's domestic preparedness and emergency response efforts." - John Henshaw

Specialty topics include, Chemical, Biological, Bioterrorism, Radiation, Personal Protective Equipment, Training and Education, Safety Equipment.

The following questions link to resources that provide safety and health information relevant to Emergency Preparedness and Response materials in the workplace.

What standards apply?

OSHA Standards | Preambles to OSHA Standards | Directives | More

What tools are available for Responders?

First Responders | First Receivers | Skilled Support Personnel | Safety Officers | More

What tools are available for General Worksites?

Emergency Action Plans | Evacuation Matrix | Fire/Explosion Matrix | ReadyBusiness | More

How does OSHA support the National Response System?

Worker S&H Annex | NRP | NEMP | Inside the Green Line | More

Where can I find additional information?

DHS | DOL | White House | CDC/NIOSH | NIC | USPS | More
Introduction to the Emergency Action Plan

An emergency action plan (EAP) is a written document required by particular OSHA standards. The purpose of an EAP is to facilitate and organize employer and employee actions during workplace emergencies. The elements of the plan must include, but are not limited to:

- Evacuation procedures and emergency escape route assignments.
- Procedures to be followed by employees who remain to operate critical plant operations before they evacuate.
- Procedures to account for all employees after an emergency evacuation has been completed.
- Rescue and medical duties for those employees who are to perform them.
- Means of reporting fires and other emergencies.
- Names or job titles of persons who can be contacted for further information or explanation of duties under the plan.

This expert system will help you to create a simple EAP. This basic plan will be adequate for needs of many small and medium-sized entities. This basic plan may not be adequate for large establishments or those with more significant hazards. Users in such establishments should consider the special characteristics of their workplaces. Users can supplement this basic plan to address any situations that require special attention.

Most small and medium-sized entities will get their basic plans from this system in 10 to 15 minutes. Please remember that this system does not save the plan it helps you to write, so you should save and/or print your plan when it is completed.

This OSHA Expert only provides information based on Federal OSHA Emergency Action Plan requirements. If you are covered by a state OSHA plan you may need to contact your local state OSHA office. Please visit the OSHA Expert User Guide to obtain further instruction.

Other Website Resources

- http://72hours.org/
- http://www.fema.gov/areyouready/basic_preparedness.shtm
- Many others…

Testing and Revising Your Plan

- Rehearsals – it is not testing your plan during an emergency. Have a specified time period to have drills (every quarter/twice a year)
- Audits – how did the rehearsal go? Also, monthly hazard checks (exit signs/alarms)
- Evolving plan – revising your plan as your business changes (new warehouse or addition to building)
Pre-Planning /Testing your Plan

- Activate all aspects of the plan by using Table top or Hands-on Scenarios: Practice, Practice, Practice
- Invite other local, regional or state organizations to participate in the training exercise
- Always De-brief the training exercise
- Use continuous improvement methods

Plan Testing Chart

<table>
<thead>
<tr>
<th>Drill Title</th>
<th>Date Scheduled</th>
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<tbody>
<tr>
<td>Management Orientation &amp; Review</td>
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<td>Employee Orientation &amp; Review</td>
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<tr>
<td>Contractor Orientation &amp; Review</td>
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<tr>
<td>Community Orientation &amp; Review</td>
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<td>Management Table Top Ex.</td>
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<td>Walk-through Drill</td>
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<td>Functional Drill</td>
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<td>Full Scale Exercise</td>
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<td>Review &amp; Evaluation</td>
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<td>Media Resources</td>
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<tr>
<td>Community Interest</td>
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</table>

Selling Your Plan To Management

- Address the risks and exposures without a plan
- Use cost analysis
- Presentation is key
Response - Optional Video

Chemical Safety Board
Lessons from 10 years of preparing for chemical disasters

Element #3

• Response
  ➢ Activate plan
  ➢ Follow the leader
  ➢ Document actions
  ➢ Debriefing

Emergency Response: Hazardous Material Release

• Notification of Release
• Activation of Response Plans
• Evacuation or Shelter in place
• Stay upwind of the release (evacuation)

Graniteville, SC Train Wreck
**R-A-I-N**

- Quick way to gather information during an Incident - WMD or other
- **R**ecognize the Hazard
- **A**void the Hazard
- **I**solate the hazard area
- **N**otify the proper support

---

**What is an Incident Command System?**

**Critical Roles in the ICS**

- On-Scene Incident Commander
- Scene Safety Officer
- Strike Teams
- Public Information Officer
- Security or Perimeter Control

Even small companies should assign roles using ICS as a guide. Many roles will be relinquished when a local, state, or federal first responder arrives.
Have Emergency Supplies on Hand

- Foods non perishable
- Bottled water
- Batteries
- Flash lights
- Blankets
- Etc.

- Can anyone name an item that all emergency kits should have???

Communications

- Operational Radios
- Battery operated devices
- Cell phones are not reliable
- Color codes

Color Code Example

<table>
<thead>
<tr>
<th>Code Name</th>
<th>EVENT</th>
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<tbody>
<tr>
<td>Code Red</td>
<td>Fire</td>
</tr>
<tr>
<td>Code Black</td>
<td>Bomb/Bomb Threat</td>
</tr>
<tr>
<td>Code Gray</td>
<td>Severe Weather</td>
</tr>
<tr>
<td>Code Orange</td>
<td>Hazmat/Toxic Materials</td>
</tr>
<tr>
<td>Code Blue</td>
<td>Medical Emergency—Adult</td>
</tr>
<tr>
<td>Code Pink</td>
<td>Mental Emergency—Pediatric</td>
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<tr>
<td>Code Yellow</td>
<td>Disaster</td>
</tr>
<tr>
<td>Code White</td>
<td>Violent Patient/Combatant</td>
</tr>
<tr>
<td>Code Silver</td>
<td>Persons with Weapons</td>
</tr>
<tr>
<td>Code Brown</td>
<td>Missing/Arrested Patient</td>
</tr>
</tbody>
</table>

OHIO Hospital First Responder Color Codes
Element #4

- Recovery
  - Mental Health/Emotional Recovery
    - Recognize that recovery is an ongoing process
    - Emphasize the importance of appropriate interventions
  - Business recovery

Building Safety

- Inspection after an emergency

Four Goals Of An Emergency Response Plan

1) Save Lives
2) Prevent Injuries
3) Protect Property
4) Protect the Environment
In addition to being able to recognize what has already happened in an emergency, it is necessary to identify the potential for other problems.

Summary

- There is no one-size-fits-all approach to emergency response
- Training and practice are essential for the successful implementation of crisis response plans
- All employees should be trained on appropriate crisis response policies and procedures
- Emergency management occurs at multiple levels – business, local, federal, and personal

Worse Case Scenario

You are the president / CEO of a business that sells food service supplies. Your company has 25 full time employees. The company is located within a business park. There are a wide range of industries within the park. You hear that a fire has started at a business that is located near your facility. You immediately send someone over to where the emergency has occurred. The employee returns and informs you the local response authorities have ordered a shelter in place. The shelter includes all of the business park along with other nearby residential and business properties. Why do you need shelter in place? You have just received a call from the Emergency Management office. They communicated to you that until further notice all businesses should be "Shelter in Place." The facility where the emergency is located manufactures Pool Chemicals. You find out that some Chlorine has escaped from their large above ground tank farm. The building has caught fire and other chemicals (such as corrosives and oxidizers) are involved in the emergency. The company where the emergency has occurred is close to your boundary line. The day is cloudy with a slight breeze to the south. You have noticed the flag is blowing to the south where your company entrance is located. Why would this emergency concern you? Your response plans include fire and weather related emergencies. Your company has food shipments to get to the customers. Should your response plans just include emergencies that happen at your facility? Why is it important to understand and plan for other types of emergencies? Why is it important to understand what neighborhood businesses could encounter? What agencies can you use to help find out critical information about companies within the community?
**Worse Case Scenario**

Students read scenarios in groups and discuss amongst themselves “what went wrong” and “what could have been in the plan” to mitigate or prevent the emergency.

---

**Group Exercises**

---

**Go Over Student Objectives**

---
QUESTIONS??
§1910.38 Emergency action plans.

(a) Application. An employer must have an emergency action plan whenever an OSHA standard in this part requires one. The requirements in this section apply to each such emergency action plan.

(b) Written and oral emergency action plans. An emergency action plan must be in writing, kept in the workplace, and available to employees for review. However, an employer with 10 or fewer employees may communicate the plan orally to employees.

(c) Minimum elements of an emergency action plan. An emergency action plan must include at a minimum:

(1) Procedures for reporting a fire or other emergency;

(2) Procedures for emergency evacuation, including type of evacuation and exit route assignments;

(3) Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;

(4) Procedures to account for all employees after evacuation;

(5) Procedures to be followed by employees performing rescue or medical duties; and

(6) The name or job title of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan.

(d) Employee alarm system. An employer must have and maintain an employee alarm system. The employee alarm system must use a distinctive signal for each purpose and comply with the requirements in §1910.165.

(e) Training. An employer must designate and train employees to assist in a safe and orderly evacuation of other employees.

(f) Review of emergency action plan. An employer must review the emergency action plan with each employee covered by the plan:

(1) When the plan is developed or the employee is assigned initially to a job;

(2) When the employee's responsibilities under the plan change; and
(3) When the plan is changed.

§1926.35 Employee emergency action plans.

(a) **Scope and application.** This section applies to all emergency action plans required by a particular OSHA standard. The emergency action plan shall be in writing (except as provided in the last sentence of paragraph (e)(3) of this section) and shall cover those designated actions employers and employees must take to ensure employee safety from fire and other emergencies.

(b) **Elements.** The following elements, at a minimum, shall be included in the plan:

1. Emergency escape procedures and emergency escape route assignments;
2. Procedures to be followed by employees who remain to operate critical plant operations before they evacuate;
3. Procedures to account for all employees after emergency evacuation has been completed;
4. Rescue and medical duties for those employees who are to perform them;
5. The preferred means of reporting fires and other emergencies; and
6. Names or regular job titles of persons or departments who can be contacted for further information or explanation of duties under the plan.

(c) **Alarm system.**

1. The employer shall establish an employee alarm system which complies with §1926.159.
2. If the employee alarm system is used for alerting fire brigade members, or for other purposes, a distinctive signal for each purpose shall be used.

(d) **Evacuation.** The employer shall establish in the emergency action plan the types of evacuation to be used in emergency circumstances.

(e) **Training.**

1. Before implementing the emergency action plan, the employer shall designate and train a sufficient number of persons to assist in the safe and orderly emergency evacuation of employees.
2. The employer shall review the plan with each employee covered by the plan at the following times:
   (i) Initially when the plan is developed,
   (ii) Whenever the employee's responsibilities or designated actions under the plan change, and
   (iii) Whenever the plan is changed.
The employer shall review with each employee upon initial assignment those parts of the plan which the employee must know to protect the employee in the event of an emergency. The written plan shall be kept at the workplace and made available for employee review. For those employers with 10 or fewer employees the plan may be communicated orally to employees and the employer need not maintain a written plan.

§1910.157 Portable fire extinguishers.

(a) **Scope and application.** The requirements of this section apply to the placement, use, maintenance, and testing of portable fire extinguishers provided for the use of employees. Paragraph (d) of this section does not apply to extinguishers provided for employee use on the outside of workplace buildings or structures. Where extinguishers are provided but are not intended for employee use and the employer has an emergency action plan and a fire prevention plan that meet the requirements of 29 CFR 1910.38 and 29 CFR 1910.39 respectively, then only the requirements of paragraphs (e) and (f) of this section apply.

(b) **Exemptions.** (1) Where the employer has established and implemented a written fire safety policy which requires the immediate and total evacuation of employees from the workplace upon the sounding of a fire alarm signal and which includes an emergency action plan and a fire prevention plan which meet the requirements of 29 CFR 1910.38 and 29 CFR 1910.39 respectively, and when extinguishers are not available in the workplace, the employer is exempt from all requirements of this section unless a specific standard in part 1910 requires that a portable fire extinguisher be provided.

(2) Where the employer has an emergency action plan meeting the requirements of §1910.38 which designates certain employees to be the only employees authorized to use the available portable fire extinguishers, and which requires all other employees in the fire area to immediately evacuate the affected work area upon the sounding of the fire alarm, the employer is exempt from the distribution requirements in paragraph (d) of this section.

(c) **General requirements.** (1) The employer shall provide portable fire extinguishers and shall mount, locate and identify them so that they are readily accessible to employees without subjecting the employees to possible injury.

(2) Only approved portable fire extinguishers shall be used to meet the requirements of this section.

(3) The employer shall not provide or make available in the workplace portable fire extinguishers using carbon tetrachloride or chlorobromomethane extinguishing agents.

(4) The employer shall assure that portable fire extinguishers are maintained in a fully charged and operable condition and kept in their designated places at all times except during use.

(5) The employer shall remove from service all soldered or riveted shell self-generating soda acid or self-generating foam or gas cartridge water type portable
fire extinguishers which are operated by inverting the extinguisher to rupture the cartridge or to initiate an uncontrollable pressure generating chemical reaction to expel the agent.

(d) Selection and distribution. (1) Portable fire extinguishers shall be provided for employee use and selected and distributed based on the classes of anticipated workplace fires and on the size and degree of hazard which would affect their use.

(2) The employer shall distribute portable fire extinguishers for use by employees on Class A fires so that the travel distance for employees to any extinguisher is 75 feet (22.9 m) or less.

(3) The employer may use uniformly spaced standpipe systems or hose stations connected to a sprinkler system installed for emergency use by employees instead of Class A portable fire extinguishers, provided that such systems meet the respective requirements of §1910.158 or §1910.159, that they provide total coverage of the area to be protected, and that employees are trained at least annually in their use.

(4) The employer shall distribute portable fire extinguishers for use by employees on Class B fires so that the travel distance from the Class B hazard area to any extinguisher is 50 feet (15.2 m) or less.

(5) The employer shall distribute portable fire extinguishers used for Class C hazards on the basis of the appropriate pattern for the existing Class A or Class B hazards.

(6) The employer shall distribute portable fire extinguishers or other containers of Class D extinguishing agent for use by employees so that the travel distance from the combustible metal working area to any extinguishing agent is 75 feet (22.9 m) or less. Portable fire extinguishers for Class D hazards are required in those combustible metal working areas where combustible metal powders, flakes, shavings, or similarly sized products are generated at least once every two weeks.

(e) Inspection, maintenance and testing. (1) The employer shall be responsible for the inspection, maintenance and testing of all portable fire extinguishers in the workplace.

(2) Portable extinguishers or hose used in lieu thereof under paragraph (d)(3) of this section shall be visually inspected monthly.

(3) The employer shall assure that portable fire extinguishers are subjected to an annual maintenance check. Stored pressure extinguishers do not require an internal examination. The employer shall record the annual maintenance date and retain this record for one year after the last entry or the life of the shell, whichever is less. The record shall be available to the Assistant Secretary upon request.

(4) The employer shall assure that stored pressure dry chemical extinguishers that require a 12-year hydrostatic test are emptied and subjected to applicable maintenance procedures every 6 years. Dry chemical extinguishers having non-refillable disposable containers are exempt from this requirement. When recharging or hydrostatic testing is performed, the 6-year requirement begins from that date.
(5) The employer shall assure that alternate equivalent protection is provided when portable fire extinguishers are removed from service for maintenance and recharging.

(f) **Hydrostatic testing.** (1) The employer shall assure that hydrostatic testing is performed by trained persons with suitable testing equipment and facilities.

(2) The employer shall assure that portable extinguishers are hydrostatically tested at the intervals listed in Table L-1 of this section, except under any of the following conditions:

(i) When the unit has been repaired by soldering, welding, brazing, or use of patching compounds;

(ii) When the cylinder or shell threads are damaged;

(iii) When there is corrosion that has caused pitting, including corrosion under removable name plate assemblies;

(iv) When the extinguisher has been burned in a fire; or

(v) When a calcium chloride extinguishing agent has been used in a stainless steel shell.

(3) In addition to an external visual examination, the employer shall assure that an internal examination of cylinders and shells to be tested is made prior to the hydrostatic tests.

### Table L-1

<table>
<thead>
<tr>
<th>Type of extinguishers</th>
<th>Test interval</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soda acid (soldered brass shells) (until 1/1/82)</td>
<td>5</td>
</tr>
<tr>
<td>Soda acid (stainless steel shell)</td>
<td>5</td>
</tr>
<tr>
<td>Cartridge operated water and/or antifreeze</td>
<td>5</td>
</tr>
<tr>
<td>Stored pressure water and/or antifreeze</td>
<td>5</td>
</tr>
<tr>
<td>Wetting agent</td>
<td>5</td>
</tr>
<tr>
<td>Foam (soldered brass shells) (until 1/1/82)</td>
<td>5</td>
</tr>
<tr>
<td>Foam (stainless steel shell)</td>
<td>5</td>
</tr>
<tr>
<td>Aqueous Film Forming foam (AFFF)</td>
<td>5</td>
</tr>
<tr>
<td>Loaded stream</td>
<td>5</td>
</tr>
<tr>
<td>Dry chemical with stainless steel</td>
<td>5</td>
</tr>
<tr>
<td>Carbon dioxide</td>
<td>5</td>
</tr>
<tr>
<td>Dry chemical, stored pressure, with mild steel, brazed brass or aluminum shells</td>
<td>12</td>
</tr>
<tr>
<td>Dry chemical, cartridge or cylinder operated, with mild steel shells</td>
<td>12</td>
</tr>
</tbody>
</table>
(4) The employer shall assure that portable fire extinguishers are hydrostatically tested whenever they show new evidence of corrosion or mechanical injury, except under the conditions listed in paragraphs (f)(2)(i)-(v) of this section.

(5) The employer shall assure that hydrostatic tests are performed on extinguisher hose assemblies which are equipped with a shut-off nozzle at the discharge end of the hose. The test interval shall be the same as specified for the extinguisher on which the hose is installed.

(6) The employer shall assure that carbon dioxide hose assemblies with a shut-off nozzle are hydrostatically tested at 1,250 psi (8,620 kPa).

(7) The employer shall assure that dry chemical and dry powder hose assemblies with a shut-off nozzle are hydrostatically tested at 300 psi (2,070 kPa).

(8) Hose assemblies passing a hydrostatic test do not require any type of recording or stamping.

(9) The employer shall assure that hose assemblies for carbon dioxide extinguishers that require a hydrostatic test are tested within a protective cage device.

(10) The employer shall assure that carbon dioxide extinguishers and nitrogen or carbon dioxide cylinders used with wheeled extinguishers are tested every 5 years at 5/3 of the service pressure as stamped into the cylinder. Nitrogen cylinders which comply with 49 CFR 173.34(e)(15) may be hydrostatically tested every 10 years.

(11) The employer shall assure that all stored pressure and Halon 1211 types of extinguishers are hydrostatically tested at the factory test pressure not to exceed two times the service pressure.

(12) The employer shall assure that acceptable self-generating type soda acid and foam extinguishers are tested at 350 psi (2,410 kPa).

(13) Air or gas pressure may not be used for hydrostatic testing.

(14) Extinguisher shells, cylinders, or cartridges which fail a hydrostatic pressure test, or which are not fit for testing shall be removed from service and from the workplace.
(15)(i) The equipment for testing compressed gas type cylinders shall be of the water jacket type. The equipment shall be provided with an expansion indicator which operates with an accuracy within one percent of the total expansion or .1cc (.1mL) of liquid.

(ii) The equipment for testing non-compressed gas type cylinders shall consist of the following:

(A) A hydrostatic test pump, hand or power operated, capable of producing not less than 150 percent of the test pressure, which shall include appropriate check valves and fittings;

(B) A flexible connection for attachment to fittings to test through the extinguisher nozzle, test bonnet, or hose outlet, as is applicable; and

(C) A protective cage or barrier for personal protection of the tester, designed to provide visual observation of the extinguisher under test.

(16) The employer shall maintain and provide upon request to the Assistant Secretary evidence that the required hydrostatic testing of fire extinguishers has been performed at the time intervals shown in Table L-1. Such evidence shall be in the form of a certification record which includes the date of the test, the signature of the person who performed the test and the serial number, or other identifier, of the fire extinguisher that was tested. Such records shall be kept until the extinguisher is hydrostatically retested at the time interval specified in Table L-1 or until the extinguisher is taken out of service, whichever comes first.

(g) Training and education. (1) Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer shall also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.

(2) The employer shall provide the education required in paragraph (g)(1) of this section upon initial employment and at least annually thereafter.

(3) The employer shall provide employees who have been designated to use fire fighting equipment as part of an emergency action plan with training in the use of the appropriate equipment.

(4) The employer shall provide the training required in paragraph (g)(3) of this section upon initial assignment to the designated group of employees and at least annually thereafter.

§1910.164 Fire detection systems.

(a) Scope and application. This section applies to all automatic fire detection systems installed to meet the requirements of a particular OSHA standard.

(b) Installation and restoration. (1) The employer shall assure that all devices and equipment constructed and installed to comply with this standard are approved for the purpose for which they are intended.
(2) The employer shall restore all fire detection systems and components to normal operating condition as promptly as possible after each test or alarm. Spare detection devices and components which are normally destroyed in the process of detecting fires shall be available on the premises or from a local supplier in sufficient quantities and locations for prompt restoration of the system.

(c) Maintenance and testing. (1) The employer shall maintain all systems in an operable condition except during repairs or maintenance.

(2) The employer shall assure that fire detectors and fire detection systems are tested and adjusted as often as needed to maintain proper reliability and operating condition except that factory calibrated detectors need not be adjusted after installation.

(3) The employer shall assure that pneumatic and hydraulic operated detection systems installed after January 1, 1981, are equipped with supervised systems.

(4) The employer shall assure that the servicing, maintenance and testing of fire detection systems, including cleaning and necessary sensitivity adjustments are performed by a trained person knowledgeable in the operations and functions of the system.

(5) The employer shall also assure that fire detectors that need to be cleaned of dirt, dust, or other particulates in order to be fully operational are cleaned at regular periodic intervals.

(d) Protection of fire detectors. (1) The employer shall assure that fire detection equipment installed outdoors or in the presence of corrosive atmospheres be protected from corrosion. The employer shall provide a canopy, hood, or other suitable protection for detection equipment requiring protection from the weather.

(2) The employer shall locate or otherwise protect detection equipment so that it is protected from mechanical or physical impact which might render it inoperable.

(3) The employer shall assure that detectors are supported independently of their attachment to wires or tubing.

(e) Response time. (1) The employer shall assure that fire detection systems installed for the purpose of actuating fire extinguishment or suppression systems shall be designed to operate in time to control or extinguish a fire.

(2) The employer shall assure that fire detection systems installed for the purpose of employee alarm and evacuation be designed and installed to provide a warning for emergency action and safe escape of employees.

(3) The employer shall not delay alarms or devices initiated by fire detector actuation for more than 30 seconds unless such delay is necessary for the immediate safety of employees. When such delay is necessary, it shall be addressed in an emergency action plan meeting the requirements of §1910.38.
(f) **Number, location and spacing of detecting devices.** The employer shall assure that the number, spacing and location of fire detectors is based upon design data obtained from field experience, or tests, engineering surveys, the manufacturer's recommendations, or a recognized testing laboratory listing.

**§1926.150 Fire protection**

(a) **General requirements.** (1) The employer shall be responsible for the development of a fire protection program to be followed throughout all phases of the construction and demolition work, and he shall provide for the firefighting equipment as specified in this subpart. As fire hazards occur, there shall be no delay in providing the necessary equipment.

(2) Access to all available firefighting equipment shall be maintained at all times.

(3) All firefighting equipment, provided by the employer, shall be conspicuously located.

(4) All firefighting equipment shall be periodically inspected and maintained in operating condition. Defective equipment shall be immediately replaced.

(5) As warranted by the project, the employer shall provide a trained and equipped firefighting organization (Fire Brigade) to assure adequate protection to life.

(b) **Water supply.** (1) A temporary or permanent water supply, of sufficient volume, duration, and pressure, required to properly operate the firefighting equipment shall be made available as soon as combustible materials accumulate.

(2) Where underground water mains are to be provided, they shall be installed, completed, and made available for use as soon as practicable.

(c) **Portable firefighting equipment -- (1) Fire extinguishers and small hose lines.** (i) A fire extinguisher, rated not less than 2A, shall be provided for each 3,000 square feet of the protected building area, or major fraction thereof. Travel distance from any point of the protected area to the nearest fire extinguisher shall not exceed 100 feet.

(ii) One 55-gallon open drum of water with two fire pails may be substituted for a fire extinguisher having a 2A rating.

(iii) A 1/2-inch diameter garden-type hose line, not to exceed 100 feet in length and equipped with a nozzle, may be substituted for a 2A-rated fire extinguisher, providing it is capable of discharging a minimum of 5 gallons per minute with a minimum hose stream range of 30 feet horizontally. The garden-type hose lines shall be mounted on conventional racks or reels. The number and location of hose racks or reels shall be such that at least one hose stream can be applied to all points in the area.
(iv) One or more fire extinguishers, rated not less than 2A, shall be provided on each floor. In multistory buildings, at least one fire extinguisher shall be located adjacent to stairway.

(v) Extinguishers and water drums, subject to freezing, shall be protected from freezing.

(vi) A fire extinguisher, rated not less than 10B, shall be provided within 50 feet of wherever more than 5 gallons of flammable or combustible liquids or 5 pounds of flammable gas are being used on the jobsite. This requirement does not apply to the integral fuel tanks of motor vehicles.

(vii) Carbon tetrachloride and other toxic vaporizing liquid fire extinguishers are prohibited.

(viii) Portable fire extinguishers shall be inspected periodically and maintained in accordance with Maintenance and Use of Portable Fire Extinguishers, NFPA No. 10A-1970.

(ix) Fire extinguishers which have been listed or approved by a nationally recognized testing laboratory, shall be used to meet the requirements of this subpart.

(x) Table F-1 may be used as a guide for selecting the appropriate portable fire extinguishers.

![Table F-1 FIRE EXTINGUISHERS DATA](image)

(2) Fire hose and connections. (i) One hundred feet, or less, of 1 1/2-inch hose, with a nozzle capable of discharging water at 25 gallons or more per minute, may be substituted for a fire extinguisher rated not more than 2A in the designated area provided that the hose line can reach all points in the area.

(ii) If fire hose connections are not compatible with local firefighting equipment, the contractor shall provide adapters, or equivalent, to permit connections.

(iii) During demolition involving combustible materials, charged hose lines, supplied by hydrants, water tank trucks with pumps, or equivalent, shall be made available.
(d) **Fixed firefighting equipment** -- (1) **Sprinkler protection.** (i) If the facility being constructed includes the installation of automatic sprinkler protection, the installation shall closely follow the construction and be placed in service as soon as applicable laws permit following completion of each story.

(ii) During demolition or alterations, existing automatic sprinkler installations shall be retained in service as long as reasonable. The operation of sprinkler control valves shall be permitted only by properly authorized persons. Modification of sprinkler systems to permit alterations or additional demolition should be expedited so that the automatic protection may be returned to service as quickly as possible. Sprinkler control valves shall be checked daily at close of work to ascertain that the protection is in service.

(2) **Standpipes.** In all structures in which standpipes are required, or where standpipes exist in structures being altered, they shall be brought up as soon as applicable laws permit, and shall be maintained as construction progresses in such a manner that they are always ready for fire protection use. The standpipes shall be provided with Siamese fire department connections on the outside of the structure, at the street level, which shall be conspicuously marked. There shall be at least one standard hose outlet at each floor.

(e) **Fire alarm devices.** (1) An alarm system, e.g., telephone system, siren, etc., shall be established by the employer whereby employees on the site and the local fire department can be alerted for an emergency.

(2) The alarm code and reporting instructions shall be conspicuously posted at phones and at employee entrances.

(f) **Fire cutoffs.** (1) Fire walls and exit stairways, required for the completed buildings, shall be given construction priority. Fire doors, with automatic closing devices, shall be hung on openings as soon as practicable.

(2) Fire cutoffs shall be retained in buildings undergoing alterations or demolition until operations necessitate their removal.

§1910.39 Fire prevention plans

(a) **Application.** An employer must have a fire prevention plan when an OSHA standard in this part requires one. The requirements in this section apply to each such fire prevention plan.

(b) **Written and oral fire prevention plans.** A fire prevention plan must be in writing, be kept in the workplace, and be made available to employees for review. However, an employer with 10 or fewer employees may communicate the plan orally to employees.

(c) **Minimum elements of a fire prevention plan.** A fire prevention plan must include:
(1) A list of all major fire hazards, proper handling and storage procedures for hazardous materials, potential ignition sources and their control, and the type of fire protection equipment necessary to control each major hazard;

(2) Procedures to control accumulations of flammable and combustible waste materials;

(3) Procedures for regular maintenance of safeguards installed on heat-producing equipment to prevent the accidental ignition of combustible materials;

(4) The name or job title of employees responsible for maintaining equipment to prevent or control sources of ignition or fires; and

(5) The name or job title of employees responsible for the control of fuel source hazards.

(d) Employee information. An employer must inform employees upon initial assignment to a job of the fire hazards to which they are exposed. An employer must also review with each employee those parts of the fire prevention plan necessary for self-protection.

1910.160 Fixed extinguishing systems, general.

(a) Scope and application. (1) This section applies to all fixed extinguishing systems installed to meet a particular OSHA standard except for automatic sprinkler systems which are covered by §1910.159.

(2) This section also applies to fixed systems not installed to meet a particular OSHA standard, but which, by means of their operation, may expose employees to possible injury, death, or adverse health consequences caused by the extinguishing agent. Such systems are only subject to the requirements of paragraphs (b)(4) through (b)(7) and (c) of this section.

(3) Systems otherwise covered in paragraph (a)(2) of this section which are installed in areas with no employee exposure are exempted from the requirements of this section.

(b) General requirements. (1) Fixed extinguishing system components and agents shall be designed and approved for use on the specific fire hazards they are expected to control or extinguish.

(2) If for any reason a fixed extinguishing system becomes inoperable, the employer shall notify employees and take the necessary temporary precautions to assure their safety until the system is restored to operating order. Any defects or impairments shall be properly corrected by trained personnel.

(3) The employer shall provide a distinctive alarm or signaling system which complies with §1910.165 and is capable of being perceived above ambient noise or light levels, on all extinguishing systems in those portions of the workplace covered by the extinguishing
system to indicate when the extinguishing system is discharging. Discharge alarms are not required on systems where discharge is immediately recognizable.

(4) The employer shall provide effective safeguards to warn employees against entry into discharge areas where the atmosphere remains hazardous to employee safety or health.

(5) The employer shall post hazard warning or caution signs at the entrance to, and inside of, areas protected by fixed extinguishing systems which use agents in concentrations known to be hazardous to employee safety and health.

(6) The employer shall assure that fixed systems are inspected annually by a person knowledgeable in the design and function of the system to assure that the system is maintained in good operating condition.

(7) The employer shall assure that the weight and pressure of refillable containers is checked at least semi-annually. If the container shows a loss in net content or weight of more than 5 percent, or a loss in pressure of more than 10 percent, it shall be subjected to maintenance.

(8) The employer shall assure that factory charged nonrefillable containers which have no means of pressure indication are weighed at least semi-annually. If a container shows a loss in net weight or more than 5 percent it shall be replaced.

(9) The employer shall assure that inspection and maintenance dates are recorded on the container, on a tag attached to the container, or in a central location. A record of the last semi-annual check shall be maintained until the container is checked again or for the life of the container, whichever is less.

(10) The employer shall train employees designated to inspect, maintain, operate, or repair fixed extinguishing systems and annually review their training to keep them up-to-date in the functions they are to perform.

(11) The employer shall not use chlorobromomethane or carbon tetrachloride as an extinguishing agent where employees may be exposed.

(12) The employer shall assure that systems installed in the presence of corrosive atmospheres are constructed of non-corrosive material or otherwise protected against corrosion.

(13) Automatic detection equipment shall be approved, installed and maintained in accordance with §1910.164.

(14) The employer shall assure that all systems designed for and installed in areas with climatic extremes shall operate effectively at the expected extreme temperatures.
(15) The employer shall assure that at least one manual station is provided for discharge activation of each fixed extinguishing system.

(16) The employer shall assure that manual operating devices are identified as to the hazard against which they will provide protection.

(17) The employer shall provide and assure the use of the personal protective equipment needed for immediate rescue of employees trapped in hazardous atmospheres created by an agent discharge.

(c) Total flooding systems with potential health and safety hazards to employees. (1) The employer shall provide an emergency action plan in accordance with §1910.38 for each area within a workplace that is protected by a total flooding system which provides agent concentrations exceeding the maximum safe levels set forth in paragraphs (b)(5) and (b)(6) of §1910.162.

(2) Systems installed in areas where employees cannot enter during or after the system's operation are exempt from the requirements of paragraph (c) of this section.

(3) On all total flooding systems the employer shall provide a pre-discharge employee alarm which complies with §1910.165, and is capable of being perceived above ambient light or noise levels before the system discharges, which will give employees time to safely exit from the discharge area prior to system discharge.

(4) The employer shall provide automatic actuation of total flooding systems by means of an approved fire detection device installed and interconnected with a pre-discharge employee alarm system to give employees time to safely exit from the discharge area prior to system discharge.

§1926.151 Fire prevention

(a) Ignition hazards. (1) Electrical wiring and equipment for light, heat, or power purposes shall be installed in compliance with the requirements of subpart K of this part.

(2) Internal combustion engine powered equipment shall be so located that the exhausts are well away from combustible materials. When the exhausts are piped to outside the building under construction, a clearance of at least 6 inches shall be maintained between such piping and combustible material.

(3) Smoking shall be prohibited at or in the vicinity of operations which constitute a fire hazard, and shall be conspicuously posted: "No Smoking or Open Flame."

(4) Portable battery powered lighting equipment, used in connection with the storage, handling, or use of flammable gases or liquids, shall be of the type approved for the hazardous locations.
(5) The nozzle of air, inert gas, and steam lines or hoses, when used in the cleaning or ventilation of tanks and vessels that contain hazardous concentrations of flammable gases or vapors, shall be bonded to the tank or vessel shell. Bonding devices shall not be attached or detached in hazardous concentrations of flammable gases or vapors.

(b) Temporary buildings. (1) No temporary building shall be erected where it will adversely affect any means of exit.

(2) Temporary buildings, when located within another building or structure, shall be of either noncombustible construction or of combustible construction having a fire resistance of not less than 1 hour.

(3) Temporary buildings, located other than inside another building and not used for the storage, handling, or use of flammable or combustible liquids, flammable gases, explosives, or blasting agents, or similar hazardous occupancies, shall be located at a distance of not less than 10 feet from another building or structure. Groups of temporary buildings, not exceeding 2,000 square feet in aggregate, shall, for the purposes of this part, be considered a single temporary building.

(c) Open yard storage. (1) Combustible materials shall be piled with due regard to the stability of piles and in no case higher than 20 feet.

(2) Driveways between and around combustible storage piles shall be at least 15 feet wide and maintained free from accumulation of rubbish, equipment, or other articles or materials. Driveways shall be so spaced that a maximum grid system unit of 50 feet by 150 feet is produced.

(3) The entire storage site shall be kept free from accumulation of unnecessary combustible materials. Weeds and grass shall be kept down and a regular procedure provided for the periodic cleanup of the entire area.

(4) When there is a danger of an underground fire, that land shall not be used for combustible or flammable storage.

(5) Method of piling shall be solid wherever possible and in orderly and regular piles. No combustible material shall be stored outdoors within 10 feet of a building or structure.

(6) Portable fire extinguishing equipment, suitable for the fire hazard involved, shall be provided at convenient, conspicuously accessible locations in the yard area. Portable fire extinguishers, rated not less than 2A, shall be placed so that maximum travel distance to the nearest unit shall not exceed 100 feet.

(d) Indoor storage. (1) Storage shall not obstruct, or adversely affect, means of exit.

(2) All materials shall be stored, handled, and piled with due regard to their fire characteristics.

(3) Noncompatible materials, which may create a fire hazard, shall be segregated by a barrier having a fire resistance of at least 1 hour.
(4) Material shall be piled to minimize the spread of fire internally and to permit convenient access for firefighting. Stable piling shall be maintained at all times. Aisle space shall be maintained to safely accommodate the widest vehicle that may be used within the building for firefighting purposes.

(5) Clearance of at least 36 inches shall be maintained between the top level of the stored material and the sprinkler defectors.

(6) Clearance shall be maintained around lights and heating units to prevent ignition of combustible materials.

(7) A clearance of 24 inches shall be maintained around the path of travel of fire doors unless a barricade is provided, in which case no clearance is needed. Material shall not be stored within 36 inches of a fire door opening.

§1910.36 Design and construction requirements for exit routes

(a) Basic requirements. Exit routes must meet the following design and construction requirements:

(1) An exit route must be permanent. Each exit route must be a permanent part of the workplace.

(2) An exit must be separated by fire resistant materials. Construction materials used to separate an exit from other parts of the workplace must have a one-hour fire resistance-rating if the exit connects three or fewer stories and a two-hour fire resistance-rating if the exit connects four or more stories.

(3) Openings into an exit must be limited. An exit is permitted to have only those openings necessary to allow access to the exit from occupied areas of the workplace, or to the exit discharge. An opening into an exit from other parts of the workplace must have a one-hour fire resistance-rating if the exit connects three or fewer stories and a two-hour fire resistance-rating if the exit connects four or more stories.

(b) The number of exit routes must be adequate -- (1) Two exit routes. At least two exit routes must be available in a workplace to permit prompt evacuation of employees and other building occupants during an emergency, except as allowed in paragraph (b)(3) of this section. The exit routes must be located as far away as practical from each other so that if one exit route is blocked by fire or smoke, employees can evacuate using the second exit route.

(2) More than two exit routes. More than two exit routes must be available in a workplace if the number of employees, the size of the building, its occupancy, or the arrangement of the workplace is such that all employees would not be able to evacuate safely during an emergency.

(3) A single exit route. A single exit route is permitted where the number of employees, the size of the building, its occupancy, or the arrangement of the
workplace is such that all employees would be able to evacuate safely during an emergency.

**Note to paragraph 1910.36(B):** For assistance in determining the number of exit routes necessary for your workplace, consult NFPA 101-2000, Life Safety Code.

(c) **Exit discharge.** (1) Each exit discharge must lead directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside.

(2) The street, walkway, refuge area, public way, or open space to which an exit discharge leads must be large enough to accommodate the building occupants likely to use the exit route.

(3) Exit stairs that continue beyond the level on which the exit discharge is located must be interrupted at that level by doors, partitions, or other effective means that clearly indicate the direction of travel leading to the exit discharge.

(d) **An exit door must be unlocked.** (1) Employees must be able to open an exit route door from the inside at all times without keys, tools, or special knowledge. A device such as a panic bar that locks only from the outside is permitted on exit discharge doors.

(2) Exit route doors must be free of any device or alarm that could restrict emergency use of the exit route if the device or alarm fails.

(3) An exit route door may be locked from the inside only in mental, penal, or correctional facilities and then only if supervisory personnel are continuously on duty and the employer has a plan to remove occupants from the facility during an emergency.

(e) **A side-hinged exit door must be used.** (1) A side-hinged door must be used to connect any room to an exit route.

(2) The door that connects any room to an exit route must swing out in the direction of exit travel if the room is designed to be occupied by more than 50 people or if the room is a high hazard area (*i.e.*, contains contents that are likely to burn with extreme rapidity or explode).

(f) **The capacity of an exit route must be adequate.** (1) Exit routes must support the maximum permitted occupant load for each floor served.

(2) The capacity of an exit route may not decrease in the direction of exit route travel to the exit discharge.

**Note to paragraph 1910.36(F):** Information regarding "Occupant load" is located in NFPA 101-2000, Life Safety Code.

(g) **An exit route must meet minimum height and width requirements.** (1) The ceiling of an exit route must be at least seven feet six inches (2.3 m) high. Any projection from the ceiling must not reach a point less than six feet eight inches (2.0 m) from the floor.
(2) An exit access must be at least 28 inches (71.1 cm) wide at all points. Where there is only one exit access leading to an exit or exit discharge, the width of the exit and exit discharge must be at least equal to the width of the exit access.

(3) The width of an exit route must be sufficient to accommodate the maximum permitted occupant load of each floor served by the exit route.

(4) Objects that project into the exit route must not reduce the width of the exit route to less than the minimum width requirements for exit routes.

(h) An outdoor exit route is permitted. Each outdoor exit route must meet the minimum height and width requirements for indoor exit routes and must also meet the following requirements:

(1) The outdoor exit route must have guardrails to protect unenclosed sides if a fall hazard exists;

(2) The outdoor exit route must be covered if snow or ice is likely to accumulate along the route, unless the employer can demonstrate that any snow or ice accumulation will be removed before it presents a slipping hazard;

(3) The outdoor exit route must be reasonably straight and have smooth, solid, substantially level walkways; and

(4) The outdoor exit route must not have a dead-end that is longer than 20 feet (6.2 m).

§1910.37 Maintenance, safeguards, and operational features for exit routes

(a) The danger to employees must be minimized. (1) Exit routes must be kept free of explosive or highly flammable furnishings or other decorations.

(2) Exit routes must be arranged so that employees will not have to travel toward a high hazard area, unless the path of travel is effectively shielded from the high hazard area by suitable partitions or other physical barriers.

(3) Exit routes must be free and unobstructed. No materials or equipment may be placed, either permanently or temporarily, within the exit route. The exit access must not go through a room that can be locked, such as a bathroom, to reach an exit or exit discharge, nor may it lead into a dead-end corridor. Stairs or a ramp must be provided where the exit route is not substantially level.

(4) Safeguards designed to protect employees during an emergency (e.g., sprinkler systems, alarm systems, fire doors, exit lighting) must be in proper working order at all times.

(b) Lighting and marking must be adequate and appropriate. (1) Each exit route must be adequately lighted so that an employee with normal vision can see along the exit route.
(2) Each exit must be clearly visible and marked by a sign reading "Exit."

(3) Each exit route door must be free of decorations or signs that obscure the visibility of the exit route door.

(4) If the direction of travel to the exit or exit discharge is not immediately apparent, signs must be posted along the exit access indicating the direction of travel to the nearest exit and exit discharge. Additionally, the line-of-sight to an exit sign must clearly be visible at all times.

(5) Each doorway or passage along an exit access that could be mistaken for an exit must be marked "Not an Exit" or similar designation, or be identified by a sign indicating its actual use (e.g., closet).

(6) Each exit sign must be illuminated to a surface value of at least five foot-candles (54 lux) by a reliable light source and be distinctive in color. Self-luminous or electroluminescent signs that have a minimum luminance surface value of at least .06 footlamberts (0.21 cd/m²) are permitted.

(7) Each exit sign must have the word "Exit" in plainly legible letters not less than six inches (15.2 cm) high, with the principal strokes of the letters in the word "Exit" not less than three-fourths of an inch (1.9 cm) wide.

(c) The fire retardant properties of paints or solutions must be maintained. Fire retardant paints or solutions must be renewed as often as necessary to maintain their fire retardant properties.
(d) **Exit routes must be maintained during construction, repairs, or alterations.** (1) During new construction, employees must not occupy a workplace until the exit routes required by this subpart are completed and ready for employee use for the portion of the workplace they occupy.

(2) During repairs or alterations, employees must not occupy a workplace unless the exit routes required by this subpart are available and existing fire protections are maintained, or until alternate fire protection is furnished that provides an equivalent level of safety.

(3) Employees must not be exposed to hazards of flammable or explosive substances or equipment used during construction, repairs, or alterations, that are beyond the normal permissible conditions in the workplace, or that would impede exiting the workplace.

(e) **An employee alarm system must be operable.** Employers must install and maintain an operable employee alarm system that has a distinctive signal to warn employees of fire or other emergencies, unless employees can promptly see or smell a fire or other hazard in time to provide adequate warning to them. The employee alarm system must comply with §1910.165.

§1910.165 Employee alarm systems

(a) **Scope and application.** (1) This section applies to all emergency employee alarms installed to meet a particular OSHA standard. This section does not apply to those discharge or supervisory alarms required on various fixed extinguishing systems or to supervisory alarms on fire suppression, alarm or detection systems unless they are intended to be employee alarm systems.

(2) The requirements in this section that pertain to maintenance, testing and inspection shall apply to all local fire alarm signaling systems used for alerting employees regardless of the other functions of the system.

(3) All pre-discharge employee alarms installed to meet a particular OSHA standard shall meet the requirements of paragraphs (b)(1) through (4), (c), and (d)(1) of this section.

(b) **General requirements.** (1) The employee alarm system shall provide warning for necessary emergency action as called for in the emergency action plan, or for reaction time for safe escape of employees from the workplace or the immediate work area, or both.

(2) The employee alarm shall be capable of being perceived above ambient noise or light levels by all employees in the affected portions of the workplace. Tactile devices may be used to alert those employees who would not otherwise be able to recognize the audible or visual alarm.

(3) The employee alarm shall be distinctive and recognizable as a signal to evacuate the work area or to perform actions designated under the emergency action plan.
(4) The employer shall explain to each employee the preferred means of reporting emergencies, such as manual pull box alarms, public address systems, radio or telephones. The employer shall post emergency telephone numbers near telephones, or employee notice boards, and other conspicuous locations when telephones serve as a means of reporting emergencies. Where a communication system also serves as the employee alarm system, all emergency messages shall have priority over all non-emergency messages.

(5) The employer shall establish procedures for sounding emergency alarms in the workplace. For those employers with 10 or fewer employees in a particular workplace, direct voice communication is an acceptable procedure for sounding the alarm provided all employees can hear the alarm. Such workplaces need not have a back-up system.

(c) Installation and restoration. (1) The employer shall assure that all devices, components, combinations of devices or systems constructed and installed to comply with this standard are approved. Steam whistles, air horns, strobe lights or similar lighting devices, or tactile devices meeting the requirements of this section are considered to meet this requirement for approval.

(2) The employer shall assure that all employee alarm systems are restored to normal operating condition as promptly as possible after each test or alarm. Spare alarm devices and components subject to wear or destruction shall be available in sufficient quantities and locations for prompt restoration of the system.

(d) Maintenance and testing. (1) The employer shall assure that all employee alarm systems are maintained in operating condition except when undergoing repairs or maintenance.

(2) The employer shall assure that a test of the reliability and adequacy of non-supervised employee alarm systems is made every two months. A different actuation device shall be used in each test of a multi-actuation device system so that no individual device is used for two consecutive tests.

(3) The employer shall maintain or replace power supplies as often as is necessary to assure a fully operational condition. Back-up means of alarm, such as employee runners or telephones, shall be provided when systems are out of service.

(4) The employer shall assure that employee alarm circuitry installed after January 1, 1981, which is capable of being supervised is supervised and that it will provide positive notification to assigned personnel whenever a deficiency exists in the system. The employer shall assure that all supervised employee alarm systems are tested at least annually for reliability and adequacy.

(5) The employer shall assure that the servicing, maintenance and testing of employee alarms are done by persons trained in the designed operation and functions necessary for reliable and safe operation of the system.
(e) Manual operation. The employer shall assure that manually operated actuation devices for use in conjunction with employee alarms are unobstructed, conspicuous and readily accessible.

§1910.151 Medical services and first aid

(a) The employer shall ensure the ready availability of medical personnel for advice and consultation on matters of plant health.

(b) In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons shall be adequately trained to render first aid. Adequate first aid supplies shall be readily available.

(c) Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

APPENDIX A TO §1910.151 -- FIRST AID KITS (NON-MANDATORY)

First aid supplies are required to be readily available under paragraph §1910.151(b). An example of the minimal contents of a generic first aid kit is described in American National Standard (ANSI) Z308.1-1978 "Minimum Requirements for Industrial Unit-Type First-aid Kits." The contents of the kit listed in the ANSI standard should be adequate for small worksites. When larger operations or multiple operations are being conducted at the same location, employers should determine the need for additional first aid kits at the worksite, additional types of first aid equipment and supplies and additional quantities and types of supplies and equipment in the first aid kits.

In a similar fashion, employers who have unique or changing first-aid needs in their workplace may need to enhance their first-aid kits. The employer can use the OSHA 200 log, OSHA 101’s or other reports to identify these unique problems. Consultation from the local fire/rescue department, appropriate medical professional, or local emergency room may be helpful to employers in these circumstances. By assessing the specific needs of their workplace, employers can ensure that reasonably anticipated supplies are available. Employers should assess the specific needs of their worksite periodically and augment the first aid kit appropriately.

If it is reasonably anticipated that employees will be exposed to blood or other potentially infectious materials while using first aid supplies, employers are required to provide appropriate personal protective equipment (PPE) in compliance with the provisions of the Occupational Exposure to Blood borne Pathogens standard, §1910.1030(d)(3) (56 FR
This standard lists appropriate PPE for this type of exposure, such as gloves, gowns, face shields, masks, and eye protection.

§1926.50 Medical services and first aid

(a) The employer shall insure the availability of medical personnel for advice and consultation on matters of occupational health.

(b) Provisions shall be made prior to commencement of the project for prompt medical attention in case of serious injury.

(c) In the absence of an infirmary, clinic, hospital, or physician, that is reasonably accessible in terms of time and distance to the worksite, which is available for the treatment of injured employees, a person who has a valid certificate in first-aid training from the U.S. Bureau of Mines, the American Red Cross, or equivalent training that can be verified by documentary evidence, shall be available at the worksite to render first aid.

(d)(1) First aid supplies shall be easily accessible when required.

(2) The contents of the first aid kit shall be placed in a weatherproof container with individual sealed packages for each type of item, and shall be checked by the employer before being sent out on each job and at least weekly on each job to ensure that the expended items are replaced.

(e) Proper equipment for prompt transportation of the injured person to a physician or hospital, or a communication system for contacting necessary ambulance service, shall be provided.

(f) In areas where 911 is not available, the telephone numbers of the physicians, hospitals, or ambulances shall be conspicuously posted.

(g) Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching or flushing of the eyes and body shall be provided within the work area for immediate emergency use.

APPENDIX A TO §1926.50 -- FIRST AID KITS (NON-MANDATORY)

First aid supplies are required to be easily accessible under paragraph §1926.50(d)(1). An example of the minimal contents of a generic first aid kit is described in American National Standard (ANSI) Z308.1-1978 "Minimum Requirements for Industrial Unit-Type First-aid Kits". The contents of the kit listed in the ANSI standard should be adequate for small work sites. When larger operations or multiple operations are being conducted at the same location, employers should determine the need for additional first aid kits at the worksite, additional types of first aid equipment and supplies and additional quantities and types of supplies and equipment in the first aid kits.
In a similar fashion, employers who have unique or changing first-aid needs in their workplace, may need to enhance their first-aid kits. The employer can use the OSHA 200 log, OSHA 101's or other reports to identify these unique problems. Consultation from the local Fire/Rescue Department, appropriate medical professional, or local emergency room may be helpful to employers in these circumstances. By assessing the specific needs of their workplace, employers can ensure that reasonably anticipated supplies are available. Employers should assess the specific needs of their worksite periodically and augment the first aid kit appropriately.

If it is reasonably anticipated employees will be exposed to blood or other potentially infectious materials while using first-aid supplies, employers should provide personal protective equipment (PPE). Appropriate PPE includes gloves, gowns, face shields, masks and eye protection (see "Occupational Exposure to Blood borne Pathogens", 29 CFR 1910.1030(d)(3)) (56 FR 64175).

Requirements/Definitions/Q&A provided in OHSA website

Introduction

Nobody expects an emergency or disaster -- especially one that affects them, their employees, and their business personally. Yet the simple truth is that emergencies and disasters can strike anyone, anytime, and anywhere. You and your employees could be forced to evacuate your company when you least expect it.

This booklet is designed to help you, the employer, plan for that possibility. The best way to protect yourself, your workers, and your business is to expect the unexpected and develop a well-thought out emergency action plan to guide you when immediate action is necessary.

What is a workplace emergency?

A workplace emergency is an unforeseen situation that threatens your employees, customers, or the public; disrupts or shuts down your operations; or causes physical or environmental damage. Emergencies may be natural or manmade and include the following:

- Floods,
- Hurricanes,
- Tornadoes,
- Fires,
- Toxic gas releases,
- Chemical spills,
- Radiological accidents,
- Explosions,
- Civil disturbances, and
- Workplace violence resulting in bodily harm and trauma.
How do you protect yourself, your employees, and your business?

The best way is to prepare to respond to an emergency before it happens. Few people can think clearly and logically in a crisis, so it is important to do so in advance, when you have time to be thorough.

Brainstorm the worst-case scenarios. Ask yourself what you would do if the worst happened. What if a fire broke out in your boiler room? Or a hurricane hit your building head-on? Or a train carrying hazardous waste derailed while passing your loading dock? Once you have identified potential emergencies, consider how they would affect you and your workers and how you would respond.

What is an emergency action plan?

An emergency action plan covers designated actions employers and employees must take to ensure employee safety from fire and other emergencies. Not all employers are required to establish an emergency action plan. See the flowchart on page 11 to determine if you are. Even if you are not specifically required to do so, compiling an emergency action plan is a good way to protect yourself, your employees, and your business during an emergency.

Putting together a comprehensive emergency action plan that deals with all types of issues specific to your worksite is not difficult.

You may find it beneficial to include your management team and employees in the process. Explain your goal of protecting lives and property in the event of an emergency, and ask for their help in establishing and implementing your emergency action plan. Their commitment and support are critical to the plan’s success.

What should your emergency action plan include?

When developing your emergency action plan, it’s a good idea to look at a wide variety of potential emergencies that could occur in your workplace. It should be tailored to your worksite and include information about all potential sources of emergencies. Developing an emergency action plan means you should do a hazard assessment to determine what, if any, physical or chemical hazards in your workplaces could cause an emergency. If you have more than one worksite, each site should have an emergency action plan.

At a minimum, your emergency action plan must include the following:

- A preferred method for reporting fires and other emergencies;
- An evacuation policy and procedure;
- Emergency escape procedures and route assignments, such as floor plans, workplace maps, and safe or refuge areas;
- Names, titles, departments, and telephone numbers of individuals both within and outside your company to contact for additional information or explanation of duties and responsibilities under the emergency plan;
- Procedures for employees who remain to perform or shut down critical plant operations, operate fire extinguishers, or perform other essential services that cannot be shut down for every emergency alarm before evacuating; and
- Rescue and medical duties for any workers designated to perform them.

You also may want to consider designating an assembly location and procedures to account for all employees after an evacuation.
In addition, although they are not specifically required by OSHA, you may find it helpful to include in your plan the following:

- The site of an alternative communications center to be used in the event of a fire or explosion; and
- A secure on- or offsite location to store originals or duplicate copies of accounting records, legal documents, your employees’ emergency contact lists, and other essential records.

How do you alert employees to an emergency?

Your plan must include a way to alert employees, including disabled workers, to evacuate or take other action, and how to report emergencies, as required. Among the steps you must take are the following:

- Make sure alarms are distinctive and recognized by all employees as a signal to evacuate the work area or perform actions identified in your plan;
- Make available an emergency communications system such as a public address system, portable radio unit, or other means to notify employees of the emergency and to contact local law enforcement, the fire department, and others; and
- Stipulate that alarms must be able to be heard, seen, or otherwise perceived by everyone in the workplace. You might want to consider providing an auxiliary power supply in the event that electricity is shut off. (29 CFR 1910.165(b)(2) offers more information on alarms.)

Although it is not specifically required by OSHA, you also may want to consider the following:

- Using tactile devices to alert employees who would not otherwise be able to recognize an audible or visual alarm; and
- Providing an updated list of key personnel such as the plant manager or physician, in order of priority, to notify in the event of an emergency during off-duty hours.

How do you develop an evacuation policy and procedures?

A disorganized evacuation can result in confusion, injury, and property damage. That is why when developing your emergency action plan it is important to determine the following:

- Conditions under which an evacuation would be necessary;
- A clear chain of command and designation of the person in your business authorized to order an evacuation or shutdown. You may want to designate an “evacuation warden” to assist others in an evacuation and to account for personnel;
- Specific evacuation procedures, including routes and exits. Post these procedures where they are easily accessible to all employees;
- Procedures for assisting people with disabilities or who do not speak English;
- Designation of what, if any, employees will continue or shut down critical operations during an evacuation. These people must be capable of recognizing when to abandon the operation and evacuate themselves; and
- A system for accounting for personnel following an evacuation. Consider employees’ transportation needs for community-wide evacuations.
Under what conditions should you call for an evacuation?

In the event of an emergency, local emergency officials may order you to evacuate your premises. In some cases, they may instruct you to shut off the water, gas, and electricity. If you have access to radio or television, listen to newscasts to keep informed and follow whatever official orders you receive.

In other cases, a designated person within your business should be responsible for making the decision to evacuate or shut down operations. Protecting the health and safety of everyone in the facility should be the first priority. In the event of a fire, an immediate evacuation to a predetermined area away from the facility is the best way to protect employees. On the other hand, evacuating employees may not be the best response to an emergency such as a toxic gas release at a facility across town from your business.

The type of building you work in may be a factor in your decision. Most buildings are vulnerable to the effects of disasters such as tornadoes, earthquakes, floods, or explosions. The extent of the damage depends on the type of emergency and the building's construction. Modern factories and office buildings, for example, are framed in steel and are structurally more sound than neighborhood business premises may be. In a disaster such as a major earthquake or explosion, however, nearly every type of structure will be affected. Some buildings will collapse and others will be left with weakened floors and walls.

What is the role of coordinators and evacuation wardens during an emergency?

When drafting your emergency action plan, you may wish to select a responsible individual to lead and coordinate your emergency plan and evacuation. It is critical that employees know who the coordinator is and understand that person has the authority to make decisions during emergencies.

The coordinator should be responsible for the following:

- Assessing the situation to determine whether an emergency exists requiring activation of your emergency procedures;
- Supervising all efforts in the area, including evacuating personnel;
- Coordinating outside emergency services, such as medical aid and local fire departments, and ensuring that they are available and notified when necessary; and
- Directing the shutdown of plant operations when required.

You also may find it beneficial to coordinate the action plan with other employers when several employers share the worksite, although OSHA standards do not specifically require this.

In addition to a coordinator, you may want to designate evacuation wardens to help move employees from danger to safe areas during an emergency. Generally, one warden for every 20 employees should be adequate, and the appropriate number of wardens should be available at all times during working hours.

Employees designated to assist in emergency evacuation procedures should be trained in the complete workplace layout and various alternative escape routes. All employees and those designated to assist in emergencies should be made aware of employees with special needs who may require extra assistance, how to use the buddy system, and hazardous areas to avoid during an emergency evacuation.
How do you establish evacuation routes and exits?

When preparing your emergency action plan, designate primary and secondary evacuation routes and exits. To the extent possible under the conditions, ensure that evacuation routes and emergency exits meet the following conditions:

- Clearly marked and well lit;
- Wide enough to accommodate the number of evacuating personnel;
- Unobstructed and clear of debris at all times; and
- Unlikely to expose evacuating personnel to additional hazards.

If you prepare drawings that show evacuation routes and exits, post them prominently for all employees to see.

How do you account for employees after an evacuation?

Accounting for all employees following an evacuation is critical. Confusion in the assembly areas can lead to delays in rescuing anyone trapped in the building, or unnecessary and dangerous search-and-rescue operations. To ensure the fastest, most accurate accountability of your employees, you may want to consider including these steps in your emergency action plan:

- Designate assembly areas where employees should gather after evacuating;
- Take a head count after the evacuation. Identify the names and last known locations of anyone not accounted for and pass them to the official in charge;
- Establish a method for accounting for non-employees such as suppliers and customers; and
- Establish procedures for further evacuation in case the incident expands. This may consist of sending employees home by normal means or providing them with transportation to an offsite location.

How should you plan for rescue operations?

It takes more than just willing hands to save lives. Untrained individuals may endanger themselves and those they are trying to rescue. For this reason, it is generally wise to leave rescue work to those who are trained, equipped, and certified to conduct rescues.

If you have operations that take place in permit-required confined spaces, you may want your emergency action plan to include rescue procedures that specifically address entry into each confined space. (See also OSHA Publication 3138, Permit-Required Confined Spaces, and the National Institute for Occupational Safety and Health (NIOSH) Publication 80-106, Criteria for a Recommended Standard...Working in Confined Spaces.)

What medical assistance should you provide during an emergency?

If your company does not have a formal medical program, you may want to investigate ways to provide medical and first-aid services. If medical facilities are available near your worksite, you can make arrangements for them to handle emergency cases. Provide your employees with a written emergency medical procedure to minimize confusion during an emergency.

If an infirmary, clinic, or hospital is not close to your workplace, ensure that onsite person(s) have adequate training in first aid. The American Red Cross, some insurance providers, local safety councils, fire departments, or other resources may be able to
provide this training. Treatment of a serious injury should begin within 3 to 4 minutes of the accident.

Consult with a physician to order appropriate first-aid supplies for emergencies. Medical personnel must be accessible to provide advice and consultation in resolving health problems that occur in the workplace. Establish a relationship with a local ambulance service so transportation is readily available for emergencies.

What role should employees play in your emergency action plan?

The best emergency action plans include employees in the planning process, specify what employees should do during an emergency, and ensure that employees receive proper training for emergencies. When you include your employees in your planning, encourage them to offer suggestions about potential hazards, worst-case scenarios, and proper emergency responses. After you develop the plan, review it with your employees to make sure everyone knows what to do before, during and after an emergency.

Keep a copy of your emergency action plan in a convenient location where employees can get to it, or provide all employees a copy. If you have 10 or fewer employees, you may communicate your plan orally.

What employee information should your plan include?

In the event of an emergency, it could be important to have ready access to important personal information about your employees. This includes their home telephone numbers, the names and telephone numbers of their next of kin, and medical information.

What type of training do your employees need?

Educate your employees about the types of emergencies that may occur and train them in the proper course of action. The size of your workplace and workforce, processes used, materials handled, and the availability of onsite or outside resources will determine your training requirements. Be sure all your employees understand the function and elements of your emergency action plan, including types of potential emergencies, reporting procedures, alarm systems, evacuation plans, and shutdown procedures. Discuss any special hazards you may have onsite such as flammable materials, toxic chemicals, radioactive sources, or water-reactive substances. Clearly communicate to your employees who will be in charge during an emergency to minimize confusion.

General training for your employees should address the following:

- Individual roles and responsibilities;
- Threats, hazards, and protective actions;
- Notification, warning, and communications procedures;
- Means for locating family members in an emergency;
- Emergency response procedures;
- Evacuation, shelter, and accountability procedures;
- Location and use of common emergency equipment; and
- Emergency shutdown procedures.

You also may wish to train your employees in first-aid procedures, including protection against bloodborne pathogens; respiratory protection, including use of an escape-only respirator; and methods for preventing unauthorized access to the site.

Once you have reviewed your emergency action plan with your employees and everyone
has had the proper training, it is a good idea to hold practice drills as often as necessary to keep employees prepared. Include outside resources such as fire and police departments when possible. After each drill, gather management and employees to evaluate the effectiveness of the drill. Identify the strengths and weaknesses of your plan and work to improve it.

**How often do you need to train your employees?**

Review your plan with all your employees and consider requiring annual training in the plan. Also offer training when you do the following:

- Develop your initial plan;
- Hire new employees;
- Introduce new equipment, materials, or processes into the workplace that affect evacuation routes;
- Change the layout or design of the facility; and
- Revise or update your emergency procedures.

**What does your plan need to include about hazardous substances?**

No matter what kind of business you run, you could potentially face an emergency involving hazardous materials such as flammable, explosive, toxic, noxious, corrosive, biological, oxidizable, or radioactive substances.

The source of the hazardous substances could be external, such as a local chemical plant that catches on fire or an oil truck that overturns on a nearby freeway. The source may be within your physical plant. Regardless of the source, these events could have a direct impact on your employees and your business and should be addressed by your emergency action plan.

If you use or store hazardous substances at your worksite, you face an increased risk of an emergency involving hazardous materials and should address this possibility in your emergency action plan. OSHA’s Hazard Communication Standard (29 CFR 1910.1200) requires employers who use hazardous chemicals to inventory them, keep the manufacturer-supplied Material Safety Data Sheets (MSDSs) for them in a place accessible to workers, label containers of these chemicals with their hazards, and train employees in ways to protect themselves against those hazards. A good way to start is to determine from your hazardous chemical inventory what hazardous chemicals you use and to gather the MSDSs for the chemicals. MSDSs describe the hazards that a chemical may present, list the precautions to take when handling, storing, or using the substance, and outline emergency and first-aid procedures.

For specific information on how to respond to emergencies involving hazardous materials and hazardous waste operations, refer to 29 CFR, Part 1910.120(q) and OSHA Publication 3114, *Hazardous Waste and Emergency Response Operations*. Both are available online at [www.osha.gov](http://www.osha.gov).

**What special equipment should you provide for emergencies?**

Your employees may need personal protective equipment to evacuate during an emergency. Personal protective equipment must be based on the potential hazards in the workplace. Assess your workplace to determine potential hazards and the appropriate controls and protective equipment for those hazards. Personal protective equipment may include items such as the following:
- Safety glasses, goggles, or face shields for eye protection;
- Hard hats and safety shoes for head and foot protection;
- Proper respirators;
- Chemical suits, gloves, hoods, and boots for body protection from chemicals;
- Special body protection for abnormal environmental conditions such as extreme temperatures; and
- Any other special equipment or warning devices necessary for hazards unique to your worksite.

**How do you choose appropriate respirators and other equipment?**

Consult with health and safety professionals before making any purchases. Respirators selected should be appropriate to the hazards in your workplace, meet OSHA standards criteria, and be certified by the National Institute for Occupational Safety and Health.

Respiratory protection may be necessary if your employees must pass through toxic atmospheres of dust, mists, gases, or vapors, or through oxygen-deficient areas while evacuating. There are four basic categories of respirators for use in different conditions. All respirators must be NIOSH-certified under the current 29 CFR 1910.134. See also OSHA's Small Entity Compliance Guide for Respiratory Protection, 1999, online at www.osha.gov.

**Who should you coordinate with when drafting your emergency action plan?**

Although there is no specific OSHA requirement to do so, you may find it useful to coordinate your efforts with any other companies or employee groups in your building to ensure the effectiveness of your plan. In addition, if you rely on assistance from local emergency responders such as the fire department, local HAZMAT teams, or other outside responders, you may find it useful to coordinate your emergency plans with these organizations. This ensures that you are aware of the capabilities of these outside responders and that they know what you expect of them.

**What are OSHA’s requirements for emergencies?**

Some of the key OSHA requirements for emergencies can be found in the following sections of the agency’s General Industry Occupational Safety and Health Standards (29 CFR 1910).

**Subpart E -- Means of Egress**
1910.37 Means of egress
1910.38 Employee emergency plans and fire prevention plans

**Appendix Means of egress**

**Subpart H -- Hazardous Materials**
1910.119 Process safety management of highly hazardous chemicals
1910.120 Hazardous waste operations and emergency response

**Subpart I -- Personal Protective Equipment**
1910.133 Eye and face protection
1910.134 Respiratory protection
1910.135 Occupational head protection
1910.136 Occupational foot protection
1910.138 Hand protection

**Subpart J -- General Environmental Controls**
What other OSHA standards address emergency planning requirements?

In addition to 29 CFR 1910.38(a), several other OSHA standards address emergency planning requirements. These include the 29 CFR 1910.120(q), Hazardous Waste Operations and Emergency Response; 29 CFR 1910.156, Fire Brigades; and 29 CFR 1910.146(k), Permit-Required Confined Spaces. The OSHA Publication 3122, Principal Emergency Response and Preparedness Requirements in OSHA Standards and Guidance for Safety and Health Problems, provides a broad view of emergency planning requirements across OSHA standards.

What assistance does OSHA provide?

OSHA provides a wide range of references and services to help employers and employees improve workplace health and safety and comply with regulatory requirements. These include the following:

- Education and training opportunities,
- Publications, Electronic services,
- Free onsite consultation services, and
- Participation in the Voluntary Protection Programs.

To file a complaint, report an emergency, or seek OSHA advice, assistance, or products, call 1-800-321-OSHA or your nearest regional office, listed in Appendix 1. The teletypewriter (TTY) number is 1-877-889-5627.

Information on these and other OSHA programs and services is posted on the agency website at www.osha.gov.

What education and training does OSHA offer?

OSHA area offices offer a variety of information services including publications, audiovisual aids, technical advice, and speakers for special engagements.

In addition, OSHA’s Training Institute in Des Plaines, IL, provides basic and advanced courses in safety and health for federal and state compliance officers, state consultants,
federal agency employees, and private-sector employers, employees, and their representatives.

Due to the high demand for OSHA Training Institute courses, OSHA Training Institute Education Centers also offer them at sites throughout the United States. These centers are nonprofit colleges, universities, and other organizations selected through a competitive process.

OSHA also provides grants to nonprofit organizations to conduct specialized workplace training and education not available from other sources. Grants are awarded annually. Recipients contribute 20 percent of the total grant cost.

For more information on grants, training, and education, contact the OSHA Training Institute, Office of Training and Education by mail at 1555 Times Drive, Des Plaines IL 60018; by phone at (847) 297-4810, or by fax at (847) 297-4874.

What other publications does OSHA offer?

OSHA offers more than 100 documents, including brochures, fact sheets, posters, pocket cards, flyers, technical documents, and a quarterly magazine. These documents are available online at www.osha.gov or by calling (202) 693-1888. Among the titles are the following:

- Access to Medical and Exposure Records -- OSHA 3110
- All About OSHA -- OSHA 2056
- Chemical Hazard Communication -- OSHA 3084
- Consultation Services for the Employer -- OSHA 3047
- Controlling Electrical Hazards -- OSHA 3075
- Employer Rights and Responsibilities Following an OSHA Inspection -- OSHA 3000
- Employee Workplace Rights -- OSHA 3021
- Hazardous Waste and Emergency Response -- OSHA 3114
- Job Hazard Analysis -- OSHA 3071
- OSHA Handbook for Small Business -- OSHA 2209
- Personal Protective Equipment -- OSHA 3077
- Respirator Protection -- OSHA 3079

What electronic services does OSHA provide?

OSHA standards, interpretations, directives, and additional information are posted on the agency’s website at www.osha.gov. Visits to the site continue to increase, with nearly 1.4 million visitors using the site each month for a total of 23 million hits.

Among the popular Internet offerings are electronic tools to help small businesses understand and comply with OSHA regulations and promote safety and health in their workplaces. These e-Tools include the Expert Advisors, interactive software programs that help businesses identify workplace hazards. By answering a few simple questions on their computer screens, employers get reliable answers on how OSHA regulations apply to their unique work sites.

Another popular Internet product is eCATS, OSHA’s electronic Compliance Assistance Tools, which help businesses identify and correct workplace hazards. A totally new generation of e-Tools coming soon will combine both decision tree logic software and graphics, giving users enhanced capabilities and the best of both worlds.

In addition, a wide variety of OSHA materials including standards, interpretations,
What free onsite consultation services does OSHA provide?

The OSHA Consultation Service offers free onsite safety and health consultation services to help employers establish and maintain safe and healthful workplaces. The service is funded largely by OSHA and is delivered by professional safety and health consultants within state governments. Developed primarily for smaller employers with more hazardous operations, the service includes an appraisal of all mechanical systems, physical work practices, environmental workplace hazards, and all aspects of the employer’s job safety and health program.

The onsite consultation program is separate from OSHA’s inspection efforts. No penalties are proposed or citations issued for safety or health problems identified by an OSHA consultant. The service is confidential. The employer’s and firm’s name, and any information about the workplace, including any unsafe or unhealthful working conditions the consultant identifies, are not reported routinely to the OSHA inspection staff. The employer, however, is obligated to correct any serious job safety and health hazards identified in a timely manner, and commits to do so when requesting the service.

For more information, see Appendix 3 for a list of contact telephone numbers.

What are the Voluntary Protection Programs?

The Voluntary Protection Programs, or VPPs, recognize and promote effective safety and health program management. Companies in the VPP have strong safety and health programs, implemented and managed cooperatively by their management and labor forces in cooperation with OSHA. Sites approved for VPP’s three programs -- Star, Merit, and Demonstration -- meet and maintain rigorous standards. Benefits to participants include the following:

- Lost-workday case rates generally 60 to 80 percent below industry averages;
- Reduced workers’ compensation and other injury- and illness-related costs;
- Improved employee motivation to work safely, leading to better quality and productivity;
- Positive community recognition and interaction;
- Further improvement and revitalization of already good safety and health programs; and
- Partnership with OSHA.

For more information, contact the VPP manager in your OSHA regional office, visit OSHA’s website, or see Appendix 1 for a list of telephone numbers.

What partnership opportunities does OSHA provide?

OSHA has initiated partnerships with employers, employees, and employee representatives in a wide range of industries to encourage, assist, and recognize efforts to eliminate workplace hazards. Participants work together to identify a common goal, develop plans to achieve it, and implement those plans in a cooperative way. Partnerships can transform relationships between OSHA and an employer or entire industry. Former adversaries recognize that working together to solve workplace safety
and health problems is to everyone’s advantage.

For more information, contact your OSHA regional office. See Appendix 1 for a list of telephone numbers.

**What is the value of a good safety and health program?**

A good, effectively managed worker safety and health program can be a big factor in reducing work-related injuries and illnesses and their related costs. OSHA offers voluntary guidelines to help employers and employees in workplaces it covers develop effective safety and health programs. Safety and Health Program Management Guidelines (Federal Register 54(18): 3908-3916, January 26, 1989) identifies four general elements critical to a successful safety and health management program. These are:

- Management leadership and employee involvement;
- An analysis of worksite hazards;
- Use of hazard prevention and control initiatives; and
- Safety and health training.


**What is the role of state programs?**

The *Occupational Safety and Health Act of 1970* encourages states to develop and operate their own job safety and health plans. States that do so must adopt standards and enforce requirements that are at least as effective as federal requirements. Twenty-four states and two territories have adopted their own plans, three of which cover only public employees. For more information, visit OSHA’s website and see Appendix 2 for a listing of states and territories with approved plans.

**What other groups or associations can help me?**

Various organizations can provide you with safety and health information that may help you in formulating your emergency action plan. A few are listed here.

**Safety Data Sheets, Guides and Manuals**


**Safety Standards and Specifications Groups**

- American National Standards Institute, 11 West 42nd Street, New York, NY 10036. Coordinates and administers the federal voluntary standardization system in the United States.
Fire Protection Organizations

- Factory Insurance Association, 85 Woodland Street, Hartford, CT 06105. Composed of capital stock insurance companies that provide engineering, inspection, and loss-adjustment services.
- Factory Mutual System, 1151 Boston-Providence Turnpike, Norwood, MA 02062. An industrial fire protection, engineering, and inspection bureau established by mutual fire insurance companies.
- National Fire Protection Association, 470 Batterymarch Park, Quincy, MA 02269. A clearinghouse for information on fire protection and prevention as well as NFPA standards.
- Underwriter Laboratories, Inc., 207 East Ohio Street, Chicago, IL 60611. A nonprofit organization that publishes annual lists of manufacturers that provide products meeting appropriate standards.
# Exercise Planning Chart

<table>
<thead>
<tr>
<th>Facility Name</th>
<th>Drill Title</th>
<th>Date Scheduled</th>
<th>Date Completed</th>
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## Purpose of Exercise

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## Internal Resources

## External Resources

## Drill Control Resources

## Media Interest

## Community Interest


You are the president / CEO of a business that sells food service supplies. Your company has 25 full-time employees. The company is located within a business park with a wide range of industries. You hear that a fire has started at a business near your facility. You immediately send one of your employees over to assess the situation. When the employee returns, you learn that local response authorities have ordered “shelter in place” for the immediate area. You receive a call from the Emergency Management office telling you that all businesses should be “Shelter in Place” until further notice.

Why do you need “shelter in place?”

The facility where the emergency is located manufactures pool chemicals. You learn they had a chlorine leak from their large above-ground tank farm. The building is on fire and other chemicals (such as corrosives and oxidizers) are involved in the emergency.

The company involved in the emergency is close to your boundary line. The day is cloudy with a slight breeze to the south, confirmed by a flag blowing.

Your company’s primary entrance is in this direction.

Why would this emergency concern you? Your response plans include fire- and weather related emergencies. Your company has food shipments ready to deliver to customers.

Should your response plans just include emergencies that happen at your facility?

Why is important to understand and plan for other types of emergencies?

Why is important to understand what neighborhood businesses could encounter?

What agencies can you use to help find out critical information about companies within the community?
A man sentenced to community service reports to begin serving his time.

The department head asks him to start cleaning the bathrooms of a multi-floor complex. He is shown a cart with chemicals necessary for the job. However, he is given no instructions on the proper use of these chemicals.

He starts the assignment, knowing it is going to be a long day. He places toilet bowl cleaner (hydrochloric acid) in each toilet bowl, but it did not work as fast as he had hoped. So he starts to play pseudo chemist by adding ammonia and bleach (sodium hypochlorite) to each bowl, thinking that this is an easy way to clean the toilets. He thinks nothing of mixing these chemicals since they are just cleaning chemicals we all use at home. He repeats this procedure for all the toilets on the first and second floor.

Unbeknownst to him a chemical reaction started to take place which resulted in a release of chlorine gas throughout the complex which made people sick.

The local fire department was called to assist with the incident. The entire building had to be evacuated and 18 people (14 staff and 4 private citizens) were taken to the hospital. The remaining involved were treated for chemical exposure to the lungs and skin and advised to see their physician’s for follow-up care.

The local press arrived on the scene and were seeking information from staff leaving the building before a member of management intervened, stating that a news conference would be held later that day.

What went wrong with this scenario?
Why did the citizen not get appropriate training before being allowed to use the chemicals on the cart?
Why did the supervisor of that department not check up on the citizen?
Call Center Scenario

A midsized call center company has 20 regular employees, as well as several temporary employees to help with seasonal peaks in call volume.

During the preparation of a company Thanksgiving meal, the company kitchen catches on fire. The fire alarm sounds and the employees all go to the back of the building to the designated meeting point. Managers and team leaders check to make sure all personal are accounted for and report this to the emergency response team leader. When the fire department arrives he reports there are no missing employees.

The firemen enter the building and contain the fire rather quickly. As the fire chief does a quick inspection of the building, he finds a temporary employee wearing headphones and filing papers in an enclosed file room. This person had started with the company that morning, and his supervisor had an appointment during the fire. The supervisor had shown this employee the file room and had given him limited instructions, stating that he would be given a more detailed orientation later that day. The employee was not injured and totally unaware of the fire until the fire chief entered the file room.

What did this company do right?
What did this company do wrong?
What procedure/plan should they have had in place?
Trailer Fire Scenario

A company that repairs over the road semi-trailers performed a repair on a moving company’s trailer which was loaded with family furniture and personal possessions. While the load was in transit, it was discovered that the trailer was leaking. It was decided it should be repaired before delivery to prevent any weather-related damage to the customer’s belongings.

Late in the afternoon, just before the close of business, the trailer was in the shop to weld the outer skin. The trailer had been padlocked to protect the family’s possessions and locked in the shop before the crew went home for the evening.

When they opened for business the next day, the shop was full of smoke originating from inside the trailer. The fire alarm was activated and all employees (including the office staff) evacuated the building and reported to a predetermined location. During the evacuation, the trailer was pulled out of the shop into the lot behind the building.

When the fire department arrived, their first action was to cut the padlock off and open the doors of the trailer. However, the oxygen from the outside air fully ignited the contents of the trailer and it was a total loss. There was no damage to the company’s building and there were no injuries reported (from either the company or fire department).

What did this company do right?
What did this company do wrong (hint: fire watch)?
Sheet Paper Company Scenario

You are the safety and risk manager for a company that manufactures sheet paper. A risk audit was recently completed by your insurance carrier. One of the items the auditors considered ‘risky’ was storage of waste paper in large bins where it is collected for a bailer operation. The bailed paper is then sent to a recycling company. Some of the paper used in the bailer accumulates and could possibly cause a fire. Another concern of the auditors was the storage of waste oil which is collected from machines into 55-gallon drums and stored near the bailer area. There are approximately 15-20 drums stored at one time.

Your home phone rings at 11:45 pm. The call is from the plant manager, who is upset by a call from security that a fire has started inside the plant. He believes everyone has been evacuated, but he wants you at the scene immediately.

When you arrive at the plant, the fire chief has set up a command post and putting together a plan to use for the incident. They have no preplan for your building and are asking very technical questions about critical equipment and where hazardous conditions exist. What information can you share with the outside response authorities?

The local news media has now arrived on the scene and they are very anxious to get a story. They have been asked to stay upwind of the incident.

The fire chief states that without any company information and maps, their only job will be to control the scene. Firemen will be instructed to cool the fire and control the perimeter, making sure the fire does not spread. The fire will be considered a "loser" within the fire department guidelines. This means you will lose the business.

He will reconsider if you can come up with critical information. With company-specific information they can set a strategic plan to fight the fire and reduce the chances of having response personnel hurt.

Does your company have contingency plans for emergencies? If so what are they?
Does your company have any specialized permits?
How will your company communicate to the media?
Late Night Parking Lot Scenario

A small graphic design company has an office close to downtown. The neighborhood is primarily a mix of residential apartments with a few small companies bordering this housing, including several warehouses.

Due to the location, parking has always been in a lot across the street - about a block away. They share this lot with a small adjacent warehouse, which employs around 50 employees working 2 shifts (first & second 6am to 11pm). The lot extends to the back of a residential alley and is perpendicular to a railway.

The company has a secure keycard entrance to their facility and a panoramic camera near every entrance. Lately, some of the ladies who work in the office have been expressing concerns about security at night. There are often groups of locals hanging around the parking lot, without incident.

The neighborhood has deteriorated through the years and unemployment is currently very high. However, due to the neighborhood’s low rent, easy access to downtown, and the local business history, the companies in the neighborhood have not relocated. The head of safety/security has logged staff concerns, but there is no policy in place.

It is winter and it has been getting dark early. The graphic design company is attempting to win a major T-shirt design for a local college team, and due to this they have been working late hours. It is 8 pm. It is snowing and the lot has not been plowed.

A female associate leaves the building and walks to her car. Her car is far into the parking lot and it is cold. It does not seem anyone would want to be out in this weather and it cold, quiet, and dark. As she walks to her car she suddenly notices the silhouette of a man behind an SUV. He starts to approach her. She begins to run towards her car and falls, hitting her head. The man grabs her purse and flees.

In addition to the head injury, she hurt her knee and cannot walk. Her cell phone was in her purse. She screams but no one hears her. She attempts to drag herself to her car but it is too far and she is losing blood.

Fifteen minutes later, a supervisor from the warehouse company sees her lying in the snow. He immediately calls 911 and goes over to assist.

What did the small graphic company do right?
What did the small graphic company do wrong?
What procedure(s) should they have had in place?
Is there anything else they (or anyone else) should do to avoid a similar situation in the future?
### Risk Vulnerability Chart

<table>
<thead>
<tr>
<th>Emergency Event</th>
<th>Probability (+)</th>
<th>Human Impact (+)</th>
<th>Property Impact (+)</th>
<th>Business Impact (+)</th>
<th>Internal/External Resources (-)</th>
<th>Total Cost (=)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 to 10</td>
<td>1 to 10</td>
<td>1 to 10</td>
<td>1 to 10</td>
<td>1 to 10 (subtract)</td>
<td>0 to 39</td>
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</tbody>
</table>

### Definitions

- **Probability**: Defined as the likelihood of the event to occur. It has twice the weight of the other factors. In determining the likelihood use statics available to your company and be consistent with your scoring down columns. For example: if there is a 50% chance of a fire in 20 years, and a 80% chance of a blizzard this year, convert your data to match scale.

- **Human Impact**: Defined as the likelihood of an injury (physical and emotional) to occur during event with the present safeguards and emergency plan.

- **Property Impact**: Defined as the damage to property, materials, and merchandise in relation to a dollar amount if event would occur with present safeguards and emergency plan.

- **Business Impact**: Defined as the loss of production, sales, or status of a company if event would occur with present safeguards and emergency plan.

- **Internal/External Resources**: Defined as resources that enable a company to combat an emergency after the fact that lesson impact. For example a fire is lessoned if a company is located right next to a fire station (external) or has a fire suppression system installed (internal).

- **Total Cost**: The number calculated in relation to other possible emergency events that help prioritize your plan, training, and sell components [of the plan] to management.
### Risk Vulnerability Chart for Company XYZ

<table>
<thead>
<tr>
<th>Emergency Event</th>
<th>Probability (+)</th>
<th>Human Impact(+)</th>
<th>Property Impact(+)</th>
<th>Business Impact(+)</th>
<th>Internal/External Resources(-)</th>
<th>Total risk (=)</th>
</tr>
</thead>
<tbody>
<tr>
<td>fire</td>
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<td>10</td>
<td>7</td>
<td>5</td>
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<td>15</td>
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<tr>
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<td>6</td>
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<td>complete network failure</td>
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<td>1</td>
<td>1</td>
<td>8</td>
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<td>18</td>
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</table>

You can see from this example that this company should work on a plan to protect the company from a tornado first. Your companies’ chart would have far more emergency events, along with the possibility of breaking down general emergency events in this example into more specific emergency events. Management would have to figure probabilities, impact, and resources with the best information they have. The goal is to have data to support your plan, not arbitrary numbers. Whether you use a chart similar to this, or your own system, management will be willing to spend money if you show them how planning for an emergency increases the survival ability of a company. Additionally, time should be spent training employees on what they do not know instead of having the same fire drill at the same time every year.
<table>
<thead>
<tr>
<th>Emergency Event</th>
<th>Probability (+)</th>
<th>Human Impact (+)</th>
<th>Property Impact (+)</th>
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<td>1 to 10</td>
<td>1 to 10 (subtract)</td>
<td>0 to 39</td>
</tr>
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</table>
Research Project/Presentation

In groups of 4 or 5:

- Each group will be given a topic
- Topic will include some basic questions to be answered
- Groups will need to do a 3-7 minute presentation in front of the class on their specific topic
- Resources include:
  - Laptops with internet access & suggested websites located within WORD document
  - Manual
  - Any supplemental handouts
  - Each other as subject matter experts
  - Materials- flip chart paper, markers, index cards, etc.
- Spend 15 to 25 minutes (as directed by instructor) researching and preparing topic to be presented to class as a whole
- At the conclusion of research time, a spokesperson, or the whole group, will come to the front of the class and present their information to the class
- Remember—It does not have to be perfect, and you might not have time to answer all the questions, but use what resources you have to do the best you can

Exercise Objective:

- To gain more knowledge in addition to what has been taught
- Share ideas and knowledge amongst each other
- Discover available internet resources that can be visited in more depth at a later time
- Reinforce instruction by actually participating in the learning process

Instructor will highlight any key points at the conclusion of each presentation. The instructor may ask the class for any feedback that could add to the exercise.
Dry Runs

Another sign to watch for is “dry runs.” Before execution of the final operation or plan, a practice session will be run to work out the flaws and unanticipated problems. A dry run may be the heart of the planning stage of a terrorist act. If you find someone monitoring a police radio frequency and recording emergency response times, you may be observing a dry run. Multiple dry runs are normally conducted at or near the target area.

Deploying Assets/Getting into Position

The seventh and final sign to look for is someone deploying assets or getting into position. This is a person’s last chance to alert authorities before the terrorist act occurs. It is also important to remember that pre-incident indicators may come months or even years apart. Therefore, it is extremely important to document every fragment of information, no matter how insignificant it may appear, and forward this information to the Ohio Homeland Security tipline at 877-OHS-INTEL.
Surveillance

If there is a specific target that terrorists have chosen, that target area will most likely be observed during the planning phase of the operation. This is done to determine the strengths, weaknesses and number of personnel that may respond to an incident. Routes to and from the target are usually established during the surveillance phase. It is important to note suspicious actions such as someone recording or monitoring activities, drawing diagrams or annotating on maps, using vision-enhancing devices, and having in one’s possession floor plans or blueprints of places such as high-tech firms, financial institutions, or government/military facilities. Any of these surveillance-type acts MAY be an indicator that something is not right and should be reported immediately. Nothing is too menial.

Elicitation

The second sign or signal is elicitation. This includes anyone attempting to gain information about a place, person or operation. An example is someone attempting to gain knowledge about a critical infrastructure like a power plant, water reservoir or a maritime port. Terrorists may attempt to research bridge and tunnel usage, make unusual inquiries concerning shipments or look into how a military base operates. They may also attempt to place “key” people in sensitive work locations.

Tests of Security

Tests of security are another area in which terrorists would attempt to gather data. This is usually conducted by driving by the target, moving into sensitive areas and observing security or law enforcement response. Items of interest would include the time in which it takes to respond to an incident or the routes taken to a specific location. Terrorists may also try to penetrate physical security barriers or procedures in order to assess strengths and weaknesses. Often, legitimate employment is gained at key locations to monitor day-to-day activities and gather detailed knowledge in order to make their mission or scheme more effective.

Acquiring Supplies

It may be a case where someone is purchasing or stealing explosives, weapons or ammunition. It could be someone storing harmful chemical equipment. Terrorists would also find it useful to acquire law enforcement equipment and identification, military uniforms and decals, as well as flight passes, badges or even flight manuals. If they cannot find the opportunity to steal these types of things, they may try to photocopy identification badges or attempt to make passports or other forms of identification by counterfeiting. Any of these items would make it easier for one to gain entrance to secured or usually prohibited areas.

Suspicious People Who Don’t Belong

Another pre-incident indicator is observing suspicious people who just “don’t belong.” This does not mean we should profile individuals, but does mean we should profile behaviors. This includes suspicious border crossings, stowaways aboard a ship or people jumping ship in a port. It may mean having someone in a workplace, building, neighborhood or business establishment that does not fit in because of demeanor, language usage or unusual questions he/she is asking.
Ohio Homeland Security is a division within the Ohio Department of Public Safety

1970 West Broad Street
Columbus, Ohio 43223
614-387-6171

www.homelandsecurity.ohio.gov

Strategic Analysis and Information Center

TOLL-FREE TIP LINE:
877-OHS-INTEL (877-647-4683)
614-799-3555
The Ohio Homeland Security Division contributes to the prevention, detection, deterrence and response to terrorist activities in a number of ways. Central to any successful interdiction of terrorists is the ability to effectively collect and share information from many different sources.

Vital links to build intelligence on terrorist operations come from traditional agencies and from non-mainstream information services. To this end, the Ohio Division of Homeland Security has created the Strategic Analysis and Information Center to facilitate effective terrorism-related information and intelligence sharing.

**PRIMARY OBJECTIVE**
The SAIC is a team of local, county, state, federal and private sector jurisdictions determined to make a difference. The primary objective of the SAIC is to function as a “one-stop-shop” for terrorism-related information for the State of Ohio.

The SAIC serves as a secure central fusion process for the collection, filtering, analysis and dissemination of terrorism-related information. The SAIC integrates existing local, state, federal, public and private sectors. The resulting analysis is distributed not from the point of view of any one agency, but from a neutral homeland security perspective.

Working as partners with the Federal Department of Homeland Security, the SAIC also establishes and maintains the capability to monitor, prevent and respond to potential threats. DHS maintains daily contact with Ohio Homeland Security, supplying critical guidance and intelligence, helping ensure the State of Ohio is fully informed and prepared.

The SAIC refers terrorist specific “criminal” intelligence to five FBI Joint Terrorism Task Forces, which are located in the major urban areas of Ohio. The JTTFs consist of representatives of federal, local, county and state law enforcement agencies. Viewed as the nation’s clearinghouse for criminal investigations relating to terrorism activities, each JTTF has its own investigative and analytical staff.

**SAIC PRODUCTS**
- Serve as catalyst and facilitator for effective exchange of information, traditional and non-traditional sources
- Operating and responding to toll-free 877-OHS-INTEL tip line/hotline
- Issue alerts as appropriate to various sectors
- Issue reports on trends, technology, success stories, daily/monthly summaries
- Electronically file, catalog and cross-reference sensitive intelligence bulletins, advisories and alert messages for access by law enforcement
- Relay bulletins, advisories and alerts to all sectors as appropriate
- Compile threat assessments
- Maintain a state map situational status display at all times
- Assess threat levels for special events around the state
- Maintain a secure communications facility
- Offer secure storage for classified information and equipment
- Flash notification abilities for various sectors
- Maintain an emergency contact list of critical agency officials
- Implement activations of the statewide law enforcement response plan
- Maintain personnel and equipment inventory related to the law enforcement response plan
- Collect, collate, filter, analyze, disseminate and review critical terrorist-related information from all sources
- Monitor evolving terrorist-related activities
- Sponsor information-sharing meetings throughout the state
- Promote information-sharing best practices
It is important to be prepared for emergencies. Emergencies include natural ones like tornadoes or earthquakes; other types include man-made ones such as biological, chemical, or nuclear emergencies.

**READY IN 3**

We don’t know when an emergency will happen. But there are things we can do to prepare for emergencies of any kind. Preparing now will help protect you and your family in the future. Ready in 3 is an easy way to learn how to prepare for an emergency.

Ready in 3 includes three steps

- Create a plan for you, your family, and your business.
- Prepare a kit for home, car and work.
- Listen for information about what to do and where to go during an actual emergency.

This brochure will help you learn about three types of emergencies: biological, chemical, and nuclear.

**BIOLOGICAL EMERGENCIES**

Bacteria, viruses, and poisons made by bacteria can cause biological emergencies. They can be sprayed into the air or put into food sources or drinking water. They can also be spread by person-to-person contact.

What should I do during a biological emergency?

Listen to a radio, television, or an emergency-alert system for instructions. Have a battery-powered radio available, if needed. Officials will tell you whether to stay inside or leave your home. They will tell you where to go if you need to leave your home.

Columbus and Metropolitan Medical Response System
C/O Columbus Health Department
Office of Emergency Preparedness
240 Parsons Avenue
Columbus, Ohio 43215
614-645-7089

The Columbus & Metropolitan Medical Response System is a partnership among Columbus and Franklin County: law enforcement, fire departments, emergency medical services, emergency management agencies, emergency response agencies, public health organizations, hospitals, and other community partners. These groups also work closely with response and planning agencies throughout the State of Ohio.

Ready in 3 was originally designed and created by the Missouri Department of Health and Senior Services in March 2004 to educate Missourians on preparing for emergencies.

Rev 6.29.05
CHEMICAL EMERGENCIES

Chemical emergencies happen when the air is poisoned with harmful chemicals or when chemicals are put into food sources or drinking water. These chemicals can be breathed in or absorbed through the skin.

What should I do during a chemical emergency?
Listen to a radio, television, or an emergency-alert system for instructions. Have a battery-powered radio available, if needed. Officials will tell you whether to stay inside or leave your home. They will tell you where to go if you need to leave your home. You may be told to stay at home and:

♦ Turn off all ventilation systems. This includes furnaces, air conditioners, vents, and fans
♦ Stay in an inside room with no windows. Make sure there is enough space for everyone in the room.
♦ If instructed, seal the room openings with heavy-duty tape and plastic sheets. Room openings include doors and all vents.

What should I do after a chemical emergency?
Continue to listen to the radio, television, or emergency-alert system for instructions.

NUCLEAR OR RADIATION EMERGENCIES

People are exposed to very small amounts of radiation every day. Nuclear or radiation emergencies could expose people to large amounts of radiation, depending on the type of emergency.

A radiation emergency could include a nuclear power plant accident, the explosion of a small nuclear device, or a dirty bomb. A dirty bomb is an explosive, like dynamite, that contains radioactive materials.

What should I do during a radiation emergency?
Officials will monitor the amount of radiation and decide what to do. Listen to a radio, television, or an emergency-alert system for instructions. Have a battery-powered radio available, if needed. Officials will tell you whether to stay inside or leave your home. You may be told to stay at home and:

♦ Close and lock all doors and windows.
♦ Turn off all ventilation systems. This includes furnaces, air conditioners, vents, and fans.

What should I do after a nuclear or radiation emergency?
Continue to listen to the radio, television, or emergency-alert system for instructions.

Will a chemical emergency make me sick?
During a chemical emergency, you may have some of these symptoms:

♦ Watery eyes
♦ Burning feeling on your skin
♦ Trouble breathing
♦ Twitching
♦ Choking
♦ Trouble walking in a straight line
♦ Confusion

If you have these symptoms, call your doctor right away. If you have watery eyes and burning skin, you should:

♦ Take off your clothes and put them in a plastic bag.
♦ Wash yourself with soap and water, but do NOT scrub your skin.
♦ Put on clean clothes.
♦ Call your doctor right away.

Will a biological emergency make me sick?
You may not know right away if you were exposed to the germs or poisons that caused the emergency. Symptoms depend on the type of germ or poison that caused the emergency. Some common signs include trouble breathing and flu-like symptoms. If you feel sick, call your doctor right away. They may tell you to:

♦ Take off your clothes and put them in a plastic bag.
♦ Wash yourself with soap and water.
♦ Put on clean clothes.

What should I do after a biological emergency?
Continue to listen to the radio, television, or emergency-alert system for instructions.

Stay in an inside room with no windows. Make sure there is enough space for everyone in the room.

If you are told to leave, follow the instructions that your local officials provide and take your emergency kit.

Will a radiation emergency make me sick?
Dirty bombs probably do not have enough radiation to make you sick. The main danger is the blast. But a large nuclear explosion could make you sick. It can take from several hours to days for any signs to appear. Some people have no symptoms. Others have only one or two symptoms. Some common symptoms include:

♦ Reddening of the skin
♦ Feeling sick or throwing up
♦ Diarrhea
♦ Feeling very tired
♦ Headache
♦ Sore mouth or bleeding gums

If you feel sick, call your doctor right away.

What should I do after a nuclear or radiation emergency?
Continue to listen to the radio, television, or emergency-alert system for instructions.
Ohio Homeland Security’s Contact and Information Management System (CIMS) provides users with a secure “one-stop-shop” source for receiving relevant and timely homeland security as well as all-hazards information.

CIMS is available to public and private sector officials who are involved with terrorism prevention, response, mitigation and recovery efforts.

For CIMS access, please contact Mary Tyler at 614-644-3895 or MPTyler@dps.state.oh.us
In 2003, Ohio Homeland Security launched a new resource to provide public and private sectors with a secure means of obtaining information in a “one-stop-shop” repository. It is called the Contact and Information Management System (CIMS).

CIMS is a centralized, cross-functional repository for Homeland Security information sharing as well as a secure means to disseminate timely and relevant information to multi-disciplines and jurisdictions across the state of Ohio. CIMS allows alerts and/or messages to be sent to various jurisdictions and disciplines simultaneously.

**SECURITY**

CIMS is password protected and is located behind a secured socket layer (SSL). SSL creates a secure connection to provide content security. Upon activation of the CIMS account, a user name and password is generated.

**CIMS CONTENT**

CIMS combines various powerful resources for information sharing needs.

1. **Web Based Application** - Access to CIMS can be obtained from any internet connection.
2. **Secure Portal** - CIMS is located behind a secured socket layer to ensure content security.
3. **Current Alerts and BOLOS (Be on the look out for)** - Current time sensitive, high priority alerts and BOLOS are posted to the CIMS Law Enforcement homepage.
4. **Current Bulletins** - Intelligence and Informational bulletins containing current event information from various state, local, and federal agencies are posted on the homepage.
5. **General Content Information** - Reference, routine and current event information is posted to the center section of the CIMS homepage.
6. **Grant Information** - Homeland Security Grant Information is posted under this caption.
7. **Training Information** - Current “open” training information from various agencies is contained under this caption.
8. **Video Broadcasts** - OHS works in partnership with various agencies to provide online video Intelligence and Training briefings.
Ohio Homeland Security Information Sharing Data Sheet

CONTACT AND INFORMATION MANAGEMENT SYSTEM (CIMS)

REQUIRED INFORMATION:

Please check one:

Law Enforcement
- Sheriff
- Police Chief
- Bomb Squad
- State Patrol
- Police officer

Defense Industrial
- Weapon Manufacturers
- Ammunition Manufacturers
- Defense Contractors

Emergency Services
- Fire
- EMS
- EMA

Banking and Finance
- Postal and Shipping
- Food Sector
- Chemical/Refinery
- Private Security

Transportation and Border Security
- Air
- Bus
- Maritime
- Rail

Agriculture
- Veterinarian
- Farming Industry
- Livestock Industry

Water
- Drinking Water
- Waste Water

Public Health
- Health Department
- State
- County
- Local (City)

Government
- State
- Legislators
- Executive Agencies
- Judicial

- County
- County Commissioners
- County Judicial

- Local
- Mayors
- Township Trustees

Education
- School Boards
- Universities
- Vocational Schools
- School Transportation

- Public
- Private

YOUR PRIMARY CONTACT INFORMATION:

First Name_________________________ Last Name:__________________________________________________

Title:_____________________________________________________________________________________

SSN (Last 4 digits):__________________ DOB:_______________________ Drivers License Number:___________________

Department / Agency / Company Name:__________________________________________________________________

Street Address:_________________________________________________________________________________

City: __________________________ State: ____________ Zip: __________________________

County: _______________________________________________________________________________________

Business Phone: ____________________________________________ Ext:__________

Fax Number:____________________________________________________________

E-Mail :_______________________________________________________________________________________

-----------------------------------------------------------------------------------

Ohio Homeland Security Coordinator________________________________________________________________________________________

One form per person: Please return this form to: Mary Tyler – Terrorism Awareness; Ohio Homeland Security SAIC; 1970 West Broad Street Columbus Ohio, 43223; email: MPTyler@dps.state.oh.us or Fax: 614-752.2419.

Rev 08/06
<table>
<thead>
<tr>
<th>WHO Phases</th>
<th>US Stages</th>
<th>Central Ohio Regional Stages</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTER-PANDEMIC PERIOD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused a human infection may be present in animals. If present in animals, the risk of human disease is considered to be low.</td>
<td>New domestic animal outbreak in at-risk country</td>
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<tr>
<td>PANDEMIC ALERT</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>No new influenza virus subtypes have been detected in humans. However a circulating animal influenza poses a substantial risk of human disease.</td>
<td>New domestic animal outbreak in at-risk country</td>
</tr>
<tr>
<td>3</td>
<td>Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact</td>
<td>New domestic animal outbreak in at-risk country</td>
</tr>
<tr>
<td>4</td>
<td>Small cluster(s) with a limited human-to-human transmission but spread is highly localized suggesting that the virus is not well adapted to humans</td>
<td>Suspected human outbreak overseas</td>
</tr>
<tr>
<td>5</td>
<td>Larger cluster(s) but human-to-human spread still localized suggesting that the virus is increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).</td>
<td>Confirmed human outbreak overseas</td>
</tr>
<tr>
<td>PANDEMIC PERIOD</td>
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<tr>
<td>6</td>
<td>Pandemic phase: increased and sustained transmission in general population</td>
<td>Widespread human outbreaks in multiple locations overseas</td>
</tr>
<tr>
<td></td>
<td></td>
<td>First human case in North America</td>
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<td></td>
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<td>First human case in United States</td>
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<td>First human case in Ohio</td>
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<td></td>
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<td>First human case in Central Ohio Region</td>
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<tr>
<td></td>
<td></td>
<td>Widespread human outbreaks in Ohio</td>
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<tr>
<td></td>
<td></td>
<td>30% absenteeism rate</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Preparation for subsequent waves</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Post Pandemic</td>
</tr>
</tbody>
</table>

This is a draft created by Columbus Public Health and Franklin County Board of Health.
Emergency Planning Resources
June 2007

1. General

Government web sites:

  http://www.fema.gov/business/guide
- Federal Emergency Management Agency (FEMA): Provides information for businesses, emergency personnel, government, etc. on emergency planning.  
  http://www.fema.gov
- NIOSH’s Emergency Response Resources page: Presents resources on a variety of emergencies for both emergency responders and employers.  
  http://www.cdc.gov/niosh/topics/emres
- OSHA’s Emergency Preparedness and Response page: Presents OSHA’s resources on this topic.  
  http://www.osha.gov/SLTC/emergencypreparedness
  http://www.osha.gov/Publications/osha3088.pdf
- Ohio Emergency Management Agency: Coordinates activities related to disaster response and recovery in Ohio.  
  http://www.ema.ohio.gov
- Ready Business: Provides resources for businesses on planning for emergencies.  
  http://www.ready.gov/business
- Small Business Administration’s page on disaster preparedness for small businesses.  
  http://www.sba.gov/localresources/disasteroffices/disaster_recov/prepared/getready.html

Organization web sites:

- American Red Cross’s *Business & Industry Guide*: Encourages businesses to plan for all kinds of emergencies and disasters.  
  http://www.redcross.org/services/disaster
- NFPA 1600: *Standard on Disaster/Emergency Management and Business Continuity Programs*, 2004: Establishes a common set of criteria for disaster planning for both public and private programs.  
- Oklahoma State University’s Homeland Security and Emergency Preparedness page: Presents links to a variety of resources on this topic.  
  http://www.pp.okstate.edu/ehs/hazmat/terrorism.htm

Training aids:
• BWC’s Video library offers hundreds of workplace safety and health videos for loan to Ohio employers. Topics include emergency preparedness, fire prevention, workplace violence, the incident command system, HAZWOPER, chemical safety and disaster cleanup safety.  

• Emergency Film Group: Offers video-based training materials for hazmat & terrorism emergency response.  
http://www.efilmgroup.com

2. Incident Command System

• National Incident Management System Integration Center (FEMA): The Center oversees all aspects of NIMS including the development of compliance criteria and implementation activities at federal, state and local levels. It provides guidance and support to jurisdictions and incident management and responder organizations as they adopt the system.  
http://www.fema.gov/emergency/nims

3. Hazardous Materials/Chemical Web sites:

• Agency for Toxic Substances and Disease Registry (ATSDR): Provides health information to prevent harmful exposures and disease related to toxic substances.  
http://www.atsdr.cdc.gov

• CAMEO Chemicals: An online library of more than 6,000 data sheets containing response-related information and recommendations for hazardous materials.  
http://cameochemicals.noaa.gov

• CHEMTREC: Serves as a round-the-clock resource for obtaining immediate emergency response information for accidental chemical releases.  
http://www.chemtrec.org/Chemtrec

• DOT’s Office of Hazardous Materials Safety: Promulgates a national safety program to minimize the risks to life and property inherent in commercial transportation of hazardous materials.  
http://hazmat.dot.gov

• EPA’s Chemical Emergency Preparedness and Prevention: Provides info on Risk Management Plans (RMPs), Emergency Planning and Community Right-to-Know Act (EPCRA), tools and resources.  
http://yosemite.epa.gov/OSWER/Ceppoweb.nsf/content/index.html

• Emergency Planning for Chemical Spills: This web site is not currently being updated, but it provides a wealth of information that was compiled by several government agencies and other organizations in Arizona.  
http://www.chemicalspill.org

• National Clearinghouse for Worker Safety and Health Training: A resource for workers and trainers who are involved in the handling of hazardous waste
or in responding to emergency releases of hazardous materials and terrorist actions.
http://www.wetp.org/wetp

- National Response Center (NRC): The sole federal point of contact for reporting oil and chemical spills.
  http://www.nrc.uscg.mil

- North American Emergency Response Guidebook: Online version
  http://hazmat.dot.gov/pubs/erg/gydebook.htm

4. Fire


- National Fire Protection Association: Serves as the world's leading advocate of fire prevention.
  http://www.nfpa.org

- OSHA’s Fire Safety page: Provides information on OSHA fire safety standards.
  http://www.osha.gov/SLTC/firesafety

5. Natural Disasters

  http://www.epa.gov/greenkit/q5_disas.htm

- NOAA’s emergency information page: Provides resources on severe weather emergencies.
  http://www.noaa.gov/emergency.html

6. Pandemics

- PandemicFlu.gov: Provides comprehensive government-wide information on pandemic influenza and avian influenza.
  http://www.pandemicflu.gov

7. Mail

- NIOSH’s Handling Irradiated Mail page: Provides guidelines for opening mail that has been irradiated to eliminate biohazards.
  http://www.cdc.gov/niosh/topics/irr-mail

- Postal Service’s Security of the Mail page: Offers information concerning mailroom security and suspicious mail.

8. Terrorism
• Dept. of Homeland Security: Provides the unifying core for the vast national network of organizations and institutions involved in efforts to secure the nation.  
http://www.dhs.gov

http://www.bens.org/Getting-Ready.pdf

• NIOSH’s Emergency Preparedness for Business page: Provides resources for developing a comprehensive plan for dealing with terrorism-related events.  
http://www.cdc.gov/niosh/topics/prepared

9. Violence
• NIOSH’s Occupational Violence page: Presents NIOSH’s resources on this topic.  
http://www.cdc.gov/niosh/injury/traumaviolence.html

• OSHA’s Workplace Violence page: Presents OSHA’s resources on this topic.  
http://www.osha-slc.gov/SLTC/workplaceviolence

10. Business Continuance
• Association of Contingency Planners is a network of business continuity professionals.  
http://www.acp-international.com

• BWC’s Disaster Preparedness and Business Continuance web page presents a list of resources on this topic.  

• Disaster Recovery Journal: Find sample plans under “Tools.”  
http://www.drj.com

11. Schools
• Ohio Resource Network for Safe and Drug Free Schools and Communities offers an online prevention information and networking support system,  
http://www.ebasedprevention.org


• School safety information from the Ohio Emergency Management Agency:  
http://www.ema.ohio.gov/safe_schools.asp


12. People with Disabilities
• Center for Disability and Special Needs Preparedness: Works to ensure that all individuals are included in the development and implementation of plans for protection from natural and man-made emergencies.  
  http://www.disabilitypreparedness.org

• Dept. of Labor’s page on emergency preparedness and people with disabilities.  
  http://www.dol.gov/odep/programs/emergency.htm

• NFPA Emergency Evacuation Planning Guide for People with Disabilities: Features a checklist that building services managers and people with disabilities can use to design a personalized evacuation plan.  
  http://www.nfpa.org/categoryList.asp?categoryID=824&cookie%5Ftest=1
Pandemic Flu Preparedness

References:

Columbus Public Health:
http://www.publichealth.columbus.gov/emergency_preparedness/PandemicInfluenza.asp

Franklin County Board of Health:
http://www.co.franklin.oh.us/board_of_health/pan\ndemic_flu_planning_and_prepar.htm

Ohio Department of Health Pandemic Influenza:
http://www.ohiopandemicflu.gov/

US Pandemic Influenza:
http://www.pandemicflu.gov/

Center for Disease Control (CDC) and Prevention Pandemic Influenza:
http://www.cdc.gov/flu/avian/index.htm

World Health Organization (WHO) Avian Influenza Information:
http://www.who.int/csr/disease/avian_influenza/en/

The American Red Cross
http://www.redcross.org

Homeland Security

US Chamber of Commerce
http://www.uschamber.com/issues/index/defense/pandemic/notfluasusual.htm

If you have further questions, please contact Pandemic Influenza Coordinator Susan Campbell, MSN, RN at Columbus Public Health at 614-645-5139.
Emergency Preparedness Helpful Links:


Household ABC's: http://www.ohiopandemicflu.gov/docs/A-ZHousehold.pdf

The Ready in 3 booklet:

The shelter in place card:

The family communication card:

The biological pamphlet:

The Franklin County Pan Flu site with Power points:
http://www.co.franklin.oh.us/board_of_health/pandemic_flu_planning_and_prep.htm
ICS Overview

ICS and the Emergency Operations Center

You may be deployed to an Emergency Operations Center (EOC) rather than serve as an on-scene responder. The EOC is a multiagency coordination entity that provides support and coordination to the on-scene responders.

Although the EOC uses ICS management principles it does not manage on-scene operations. Therefore, not all aspects of ICS taught in this course may apply to EOC operations.

Gaining an understanding of the full spectrum of ICS used by Incident command will help you better support the on-scene responders if you serve in a multiagency coordination function.

The Incident Command System (ICS)

An incident is an occurrence, either caused by humans or natural phenomena, that requires response actions to prevent or minimize loss of life or damage to property and/or the environment.

Examples of incidents include:

- Fire, both structural and wild land.
- Natural disasters, such as tornadoes, floods, ice storms or earthquakes.
- Human and animal disease outbreaks.
- Search and rescue missions.
- Hazardous materials incidents.
- Criminal acts and crime scene investigations.
- Terrorist incidents, including the use of weapons of mass destruction.
- National Special Security Events, such as Presidential visits or the Super Bowl.
- Other planned events, such as parades or demonstrations.

Given the magnitude of these types of events, it's not always possible for any one agency alone to handle the management and resource needs.

Partnerships are often required among local, State, Tribal, and Federal agencies. These partners must work together in a smooth, coordinated effort under the same management system.

The Incident Command System, or ICS, is a standardized, on-scene, all-hazard incident management concept. ICS allows its users to adopt an integrated organizational structure
to match the complexities and demands of single or multiple incidents without being hindered by jurisdictional boundaries.

ICS has considerable internal flexibility. It can grow or shrink to meet different needs. This flexibility makes it a very cost effective and efficient management approach for both small and large situations.

**History of the Incident Command System (ICS)**

The Incident Command System (ICS) was developed in the 1970s following a series of catastrophic fires in California's urban interface. Property damage ran into the millions, and many people died or were injured. The personnel assigned to determine the causes of this disaster studied the case histories and discovered that response problems could rarely be attributed to lack of resources or failure of tactics. What were the lessons learned?

Surprisingly, studies found that response problems were far more likely to result from inadequate management than from any other single reason.

Weaknesses in incident management were often due to:

- Lack of accountability, including unclear chains of command and supervision.
- Poor communication due to both inefficient uses of available communications systems and conflicting codes and terminology.
- Lack of an orderly, systematic planning process.
- No common, flexible, predesigned management structure that enables commanders to delegate responsibilities and manage workloads efficiently.
- No predefined methods to integrate interagency requirements into the management structure and planning process effectively.

A poorly managed incident response can be devastating to our economy and our health and safety. With so much at stake, we must effectively manage our response efforts. The Incident Command System, or ICS, allows us to do so. ICS is a proven management system based on successful business practices. This course introduces you to basic ICS concepts and terminology.

**National Incident Management System (NIMS)**


HSPD-5 called for a National Incident Management System (NIMS) and identified steps for improved coordination of Federal, State, local, and private industry response to incidents and described the way these agencies will prepare for such a response.
The Secretary of the Department of Homeland Security announced the establishment of NIMS in March 2004. One of the key features of NIMS is the Incident Command System.

**ICS Built on Best Practices**

ICS is:

- A proven management system based on successful business practices.
- The result of decades of lessons learned in the organization and management of emergency incidents.

ICS has been tested in more than 30 years of emergency and nonemergency applications, by all levels of government and in the private sector. It represents organizational "best practices,” and as a component of NIMS has become the standard for emergency management across the country.

NIMS requires the use of ICS for all domestic responses. NIMS also requires that all levels of government, including Territories and Tribal Organizations, adopt ICS as a condition of receiving Federal preparedness funding.

**What ICS Is Designed To Do**

Designers of the system recognized early that ICS must be interdisciplinary and organizationally flexible to meet the following management challenges:

- Meet the needs of incidents of any kind or size.
- Allow personnel from a variety of agencies to meld rapidly into a common management structure.
- Provide logistical and administrative support to operational staff.
- Be cost effective by avoiding duplication of efforts.

ICS consists of procedures for controlling personnel, facilities, equipment, and communications. It is a system designed to be used or applied from the time an incident occurs until the requirement for management and operations no longer exists.

**Applications for the Use of ICS**

Applications for the use of ICS include:

- Fire, both structural and wildland.
- Natural disasters, such as tornadoes, floods, ice storms or earthquakes.
- Human and animal disease outbreaks.
- Search and rescue missions.
- Hazardous materials incidents.
• Criminal acts and crime scene investigations.
• Terrorist incidents, including the use of weapons of mass destruction.
• National Special Security Events, such as presidential visits or the Super Bowl.
• Other planned events, such as parades or demonstrations.

ICS may be used for small or large events. It can grow or shrink to meet the changing needs of an incident or event.

**ICS Features and Principles**

**ICS Features**

As you learned in the previous lesson, ICS is based on proven management principles, which contribute to the strength and efficiency of the overall system.

ICS principles are implemented through a wide range of management features including the use of common terminology and clear text, and a modular organizational structure.

ICS emphasizes effective planning, including management by objectives and reliance on an Incident Action Plan.

ICS helps ensure full utilization of all incident resources by:

• Maintaining a manageable span of control.
• Establishing predestinated incident locations and facilities.
• Implementing resource management practices.
• Ensuring integrated communications.

The ICS features related to command structure include chain of command and unity of command as well as, unified command and transfer of command. Formal transfer of command occurs whenever leadership changes.

Through accountability and mobilization, ICS helps ensure that resources are on hand and ready.

And, finally ICS supports responders and decision makers by providing the data they need through effective information and intelligence management.

This lesson covers each of these ICS features in detail.

**Common Terminology and Clear Text**
The ability to communicate within the ICS is absolutely critical. An essential method for ensuring the ability to communicate is by using common terminology and clear text.

A critical part of an effective multiagency incident management system is for all communications to be in plain English. That is, use clear text. Do not use radio codes, agency-specific codes, or jargon.

ICS establishes common terminology allowing diverse incident management and support entities to work together. Common terminology helps to define:

- **Organizational Functions**: Major functions and functional units with incident management responsibilities are named and defined. Terminology for the organizational elements involved is standard and consistent.
- **Resource Descriptions**: Major resources (personnel, facilities, and equipment/supply items) are given common names and are "typed" or categorized by their capabilities. This helps to avoid confusion and to enhance interoperability.
- **Incident Facilities**: Common terminology is used to designate incident facilities.
- **Position Titles**: ICS management or supervisory positions are referred to by titles, such as Officer, Chief, Director, Supervisor, or Leader.

Each of the above areas will be covered in more detail in this and the remaining lessons.

### Modular Organization

The ICS organizational structure develops in a top-down, modular fashion that is based on the size and complexity of the incident, as well as the specifics of the hazard environment created by the incident. As incident complexity increases, the organization expands from the top down as functional responsibilities are delegated.

The ICS organizational structure is flexible. When needed, separate functional elements can be established and subdivided to enhance internal organizational management and external coordination. As the ICS organizational structure expands, the number of management positions also expands to adequately address the requirements of the incident.

In ICS, only those functions or positions necessary for a particular incident will be filled.

### Management by Objectives

All levels of a growing ICS organization must have a clear understanding of the functional actions required to manage the incident. Management by objectives is an approach used to communicate functional actions throughout the entire ICS organization. It can be accomplished through the incident action planning process, which includes the following steps:
Step 1: Understand agency policy and direction.
Step 2: Assess incident situation.
Step 3: Establish incident objectives.
Step 4: Select appropriate strategy or strategies to achieve objectives.
Step 5: Perform tactical direction (applying tactics appropriate to the strategy, assigning the right resources, and monitoring their performance).
Step 6: Provide necessary followup (changing strategy or tactics, adding or subtracting resources, etc.).

Reliance on an Incident Action Plan

In ICS, considerable emphasis is placed on developing effective Incident Action Plans.

An Incident Action Plan (IAP) is an oral or written plan containing general objectives reflecting the overall strategy for managing an incident. An IAP includes the identification of operational resources and assignments and may include attachments that provide additional direction.

Every incident must have a verbal or written Incident Action Plan. The purpose of this plan is to provide all incident supervisory personnel with direction for actions to be implemented during the operational period identified in the plan.

Incident Action Plans include the measurable strategic operations to be achieved and are prepared around a timeframe called an Operational Period.

Incident Action Plans provide a coherent means of communicating the overall incident objectives in the context of both operational and support activities. The plan may be oral or written except for hazardous materials incidents, which require a written IAP.

At the simplest level, all Incident Action Plans must have four elements:

- What do we want to do?
- Who is responsible for doing it?
- How do we communicate with each other?
- What is the procedure if someone is injured?

Manageable Span of Control

Another basic ICS feature concerns the supervisory structure of the organization.

Span of control pertains to the number of individuals or resources that one supervisor can manage effectively during emergency response incidents or special events.
Maintaining an effective span of control is particularly important on incidents where safety and accountability are a top priority.

Span of control is the key to effective and efficient incident management. The type of incident, nature of the task, hazards and safety factors, and distances between personnel and resources all influence span of control considerations.

Maintaining adequate span of control throughout the ICS organization is very important.

Effective span of control on incidents may vary from three (3) to seven (7), and a ratio of one (1) supervisor to five (5) reporting elements is recommended.

If the number of reporting elements falls outside of these ranges, expansion or consolidation of the organization may be necessary. There may be exceptions, usually in lower-risk assignments or where resources work in close proximity to each other.

Predestinated Incident Locations and Facilities

Incident activities may be accomplished from a variety of operational locations and support facilities. Facilities will be identified and established by the Incident Commander depending on the requirements and complexity of the incident or event.

It is important to know and understand the names and functions of the principal ICS facilities.

Incident Facilities Virtual Tour

The Incident Command Post, or ICP, is the location from which the Incident Commander oversees all incident operations. There is generally only one ICP for each incident or event, but it may change locations during the event. Every incident or event must have some form of an Incident Command Post. The ICP may be located in a vehicle, trailer, tent, or within a building. The ICP will be positioned outside of the present and potential hazard zone but close enough to the incident to maintain command. The ICP will be designated by the name of the incident, e.g., Trail Creek ICP.

Staging Areas are temporary locations at an incident where personnel and equipment are kept while waiting for tactical assignments. The resources in the Staging Area are always in available status. Staging Areas should be located close enough to the incident for a timely response, but far enough away to be out of the immediate impact zone. There may be more than one Staging Area at an incident. Staging Areas can be collocated with the ICP, Bases, Camps, Helibases, or Helispots.

A Base is the location from which primary logistics and administrative functions are coordinated and administered. The Base may be collocated with the Incident Command
Post. There is only one Base per incident, and it is designated by the incident name. The Base is established and managed by the Logistics Section.

A **Camp** is the location where resources may be kept to support incident operations if a Base is not accessible to all resources. Camps are temporary locations within the general incident area, which are equipped and staffed to provide food, water, sleeping areas, and sanitary services. Camps are designated by geographic location or number. Multiple Camps may be used, but not all incidents will have Camps.

A **Helibase** is the location from which helicopter-centered air operations are conducted. Helibases are generally used on a more long-term basis and include such services as fueling and maintenance. The Helibase is usually designated by the name of the incident, e.g. Trail Creek Helibase.

**Helispots** are more temporary locations at the incident, where helicopters can safely land and take off. Multiple Helispots may be used.

**Incident Facility Map Symbols**

In ICS, it is important to be able to identify the map symbols associated with the basic incident facilities. The map symbols used to represent each of the six basic ICS facilities are:

- **Incident Command Post**
- **Staging Area**
- **Base**
- **Camp, Helibase, and Helisot**

![Symbols](image)

**Resource Management**

ICS resources can be factored into two categories:
- **Tactical Resources**: Personnel and major items of equipment that are available or potentially available to the Operations function on assignment to incidents are called tactical resources.
- **Support Resources**: All other resources required to support the incident. Food, communications equipment, tents, supplies, and fleet vehicles are examples of support resources.

Tactical resources are always classified as one of the following:

- **Assigned**: Assigned resources are working on an assignment under the direction of a Supervisor.
- **Available**: Available resources are assembled, have been issued their equipment, and are ready for immediate assignment.
- **Out-Of-Service**: Out-of-service resources are not ready for available or assigned status.

Maintaining an accurate and up-to-date picture of resource utilization is a critical component of resource management.

Resource management includes processes for:

- Categorizing resources.
- Ordering resources.
- Dispatching resources.
- Tracking resources.
- Recovering resources.

It also includes processes for reimbursement for resources, as appropriate.

**Integrated Communications**

The use of a common communications plan is essential for ensuring that responders can communicate with one another during an incident. Communication equipment, procedures, and systems must operate across jurisdictions (interoperable).

Developing an integrated voice and data communications system, including equipment, systems, and protocols, must occur prior to an incident.

Effective ICS communications include three elements:

- **Modes**: The "hardware" systems that transfer information.
- **Planning**: Planning for the use of all available communications resources.
- **Networks**: The procedures and processes for transferring information internally and externally.
Chain of Command and Unity of Command

In the Incident Command System:

- **Chain of command** means that there is an orderly line of authority within the ranks of the organization, with lower levels subordinate to, and connected to, higher levels.
- **Unity of command** means that every individual is accountable to only one designated supervisor to whom they report at the scene of an incident.

The principles clarify reporting relationships and eliminate the confusion caused by multiple, conflicting directives. Incident managers at all levels must be able to control the actions of all personnel under their supervision. These principles do not apply to the exchange of information. Although orders must flow through the chain of command, members of the organization may directly communicate with each other to ask for or share information.

The command function may be carried out in two ways:

- As a **Single Command** in which the Incident Commander will have complete responsibility for incident management. A Single Command may be simple, involving an Incident Commander and single resources, or it may be a complex organizational structure with an Incident Management Team.
- As a **Unified Command** in which responding agencies and/or jurisdictions with responsibility for the incident share incident management.

Unified Command

A Unified Command may be needed for incidents involving:

- Multiple jurisdictions.
- A single jurisdiction with multiple agencies sharing responsibility.
- Multiple jurisdictions with multi-agency involvement.

If a Unified Command is needed, Incident Commanders representing agencies or jurisdictions that share responsibility for the incident manage the response from a single Incident Command Post.

A Unified Command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility, or accountability.

Under a Unified Command, a single, coordinated Incident Action Plan will direct all activities. The Incident Commanders will supervise a single Command and General Staff organization and speak with one voice.
Transfer of Command

The process of moving the responsibility for incident command from one Incident Commander to another is called **transfer of command**. Transfer of command may take place when:

- A more qualified person assumes command.
- The incident situation changes over time, resulting in a legal requirement to change command.
- Changing command makes good sense, e.g., an Incident Management Team takes command of an incident from a local jurisdictional unit due to increased incident complexity.
- There is normal turnover of personnel on long or extended incidents, i.e., to accommodate work/rest requirements.
- The incident response is concluded and incident responsibility is transferred back to the home agency.

The transfer of command process always includes a transfer of command briefing, which may be oral, written, or a combination of both.

Accountability

Effective accountability during incident operations is essential at all jurisdictional levels and within individual functional areas. Individuals must abide by their agency policies and guidelines and any applicable local, tribal, State, or Federal rules and regulations. The following guidelines must be adhered to:

- **Check-In:** All responders, regardless of agency affiliation, must report in to receive an assignment in accordance with the procedures established by the Incident Commander.
- **Incident Action Plan:** Response operations must be directed and coordinated as outlined in the IAP.
- **Unity of Command:** Each individual involved in incident operations will be assigned to only one supervisor.
- **Span of Control:** Supervisors must be able to adequately supervise and control their subordinates, as well as communicate with and manage all resources under their supervision.
- **Resource Tracking:** Supervisors must record and report resource status changes as they occur.
Mobilization

At any incident or event, the situation must be assessed and response planned. Resources must be organized, assigned and directed to accomplish the incident objectives. As they work, resources must be managed to adjust to changing conditions.

Managing resources safely and effectively is the most important consideration at an incident. Therefore, personnel and equipment should respond only when requested or when dispatched by an appropriate authority.

Information and Intelligence Management

The analysis and sharing of information and intelligence is an important component of ICS. The incident management organization must establish a process for gathering, sharing, and managing incident-related information and intelligence.

Intelligence includes not only national security or other types of classified information but also other operational information that may come from a variety of different sources, such as:

- Risk assessments.
- Medical intelligence (i.e., surveillance).
- Weather information.
- Geospatial data.
- Structural designs.
- Toxic contaminant levels.
- Utilities and public works data.

General Guidelines—Lengthy Assignments

Many incidents last only a short time, and may not require travel. Other deployments may require a lengthy assignment away from home. Below are general guidelines for incidents requiring extended stays or travel:

- Assemble a travel kit containing any special technical information (e.g., maps, manuals, contact lists, and reference materials).
- Prepare personal items needed for your estimated length of stay, including medications, cash, credit cards, etc.
- Ensure that family members know your destination and how to contact you.
- Determine appropriate travel authorizations.
- Familiarize yourself with travel and transportation arrangements.
- Determine your return mode of transportation (if possible).
- Determine payroll procedures (at incident or through home agency).
- If you are going on a foreign assignment, be sure to take your passport.
General Guidelines—Roles and Authorities

In addition to preparing for your travel arrangements, it is important to understand your role and authorities.

- Review your emergency assignment. Know who you will report to and what your position will be.
- Establish a clear understanding of your decision making authority.
- Determine communications procedures for contacting your headquarters or home office (if necessary).
- Identify purchasing authority and procedures.
- Identify procedures for obtaining food and lodging.

Actions Prior to Departure

Upon receiving an incident assignment, your deployment briefing should include, but may not be limited to, the following information:

- Incident type and name or designation
- Descriptive location and response area
- Incident check-in location
- Specific assignment
- Reporting date and time
- Travel instructions
- Communications instructions, e.g., incident frequencies
- Special support requirements (facilities, equipment transportation and off-loading, etc.)
- Travel authorization for air, rental car, lodging, meals, and incidental expenses

Check-In at the Incident: Activities

Check-in officially logs you in at the incident. The check-in process and information helps to:

- Ensure personnel accountability.
- Track resources.
- Prepare personnel for assignments and reassignments.
- Locate personnel in case of an emergency.
- Establish personnel time records and payroll documentation.
- Plan for releasing personnel.
- Organize the demobilization process.
Check-In at the Incident: Locations

Check in only once. Check-in locations may be found at several incident facilities, including:

- Incident Command Post.
- Base or Camp(s).
- Staging Areas.
- Helibase.
- Division/Group Supervisor (for direct assignment).

Note that these locations may not all be activated at every incident.

Check-in information is usually recorded on ICS Form 211, Check-In List.

Initial Incident Briefing

After check-in, locate your incident supervisor and obtain your initial briefing. The briefing information helps you plan your tasks and communicate with others. Briefings received and given should include:

- Current situation assessment.
- Identification of your specific job responsibilities.
- Identification of coworkers.
- Location of work area.
- Identification of eating and sleeping arrangements, as appropriate.
- Procedural instructions for obtaining additional supplies, services, and personnel.
- Operational periods/work shifts.
- Required safety procedures and Personal Protective Equipment (PPE), as appropriate.

Incident Recordkeeping

All incidents require some form of recordkeeping. Requirements vary depending upon the agencies involved and the nature of the incident. Detailed information on using ICS forms will be covered in other training sessions, or may be found in the Forms Manual.

Below are general guidelines for incident recordkeeping:

- Print or type all entries.
- Enter dates by month/day/year format.
- Enter date and time on all forms and records. Use local time.
- Fill in all blanks. Use N/A as appropriate.
- Use military 24-hour time.
- Section Chiefs and above assign recordkeeper (scribe).
If you are expected to be a supervisor:

- You must maintain a daily Unit Log (ICS-214), indicating the names of personnel assigned and a listing of the major activities that occurred during the operational periods to which you were assigned.
- You are expected to give briefings to your subordinates, adjacent forces, and replacement personnel.

**Communications Discipline**

Important considerations related to communications include:

- Observing strict radio/telephone procedures.
- Using plain English in all communications. Codes should not be used in radio transmissions. Limit the use of discipline-specific jargon, especially on interdisciplinary incidents.
- Limiting radio and telephone traffic to essential information only. Plan what you are going to say.
- Following procedures for secure communications as required.

**Personal Conduct**

Sexual harassment or discrimination of any type and the use of illegal drugs and/or alcohol are prohibited on all incidents. Report all such activities to your supervisor.

Often times, incident response can produce high stress situations. As part of your responsibilities, you may be required to interact with people who have been adversely affected by the incident. It is important to be patient and act in a professional manner at all times.

**Incident Demobilization**

Agency requirements for demobilization may vary considerably. General demobilization guidelines for all personnel are to:

- Complete all work assignments and required forms/reports.
- Brief replacements, subordinates, and supervisor.
- Evaluate the performance of subordinates.
- Follow incident and agency check-out procedures.
- Provide adequate follow-up contact information.
- Return any incident-issued equipment or other nonexpendable supplies.
- Complete post incident reports, critiques, evaluations, and medical follow-up.
- Complete all payment and/or payroll issues or obligations.
- Contact the Demobilization Unit to obtain demobilization instructions.
Upon arrival at home, notify the home unit (i.e., whomever is tracking you) of your arrival and ensure your readiness.

ICS Organization

The ICS organization is unique but easy to understand. There is no correlation between the ICS organization and the administrative structure of any single agency or jurisdiction. This is deliberate, because confusion over different position titles and organizational structures has been a significant stumbling block to effective incident management in the past.

For example, someone who serves as a Chief every day may not hold that title when deployed under an ICS structure.

Performance of Management Functions

Every incident or event requires that certain management functions be performed. The problem must be identified and assessed, a plan to deal with it developed and implemented, and the necessary resources procured and paid for.

Regardless of the size of the incident, these management functions still will apply.

Five Major Management Functions

There are five major management functions that are the foundation upon which the ICS organization develops. These functions apply whether you are handling a routine emergency, organizing for a major non-emergency event, or managing a response to a major disaster. The five major management functions are:

- **Incident Command**: Sets the incident objectives, strategies, and priorities and has overall responsibility for the incident.
- **Operations**: Conducts operations to reach the incident objectives. Establishes the tactics and directs all operational resources.
- **Planning**: Supports the incident action planning process by tracking resources, collecting/analyzing information, and maintaining documentation.
- **Logistics**: Provides resources and needed services to support the achievement of the incident objectives.
- **Finance/Administration**: Monitors costs related to the incident. Provides accounting, procurement, time recording, and cost analyses.

**Organizational Structure—Incident Commander**

The Incident Commander has overall responsibility for managing the incident by objectives, planning strategies, and implementing tactics. **The Incident Commander is the only position that is always staffed in ICS applications.** On small incidents and events, one person, the Incident Commander, may accomplish all management functions.

The Incident Commander is responsible for all ICS management functions until he or she delegates the function.

**Organizational Structure—ICS Sections**

Each of the primary ICS Sections may be subdivided as needed. The ICS organization has the capability to expand or contract to meet the needs of the incident.

A basic ICS operating guideline is that the person at the top of the organization is responsible until the authority is delegated to another person. Thus, on smaller incidents when these additional persons are not required, the Incident Commander will personally accomplish or manage all aspects of the incident organization.

**ICS Position Titles**

To maintain span of control, the ICS organization can be divided into many levels of supervision. At each level, individuals with primary responsibility positions have distinct titles. Using specific ICS position titles serves three important purposes:

- Titles provide a common standard for all users. For example, if one agency uses the title Branch Chief, another Branch Manager, etc., this lack of consistency can cause confusion at the incident.
- The use of distinct titles for ICS positions allows for filling ICS positions with the most qualified individuals rather than by seniority.
- Standardized position titles are useful when requesting qualified personnel. For example, in deploying personnel, it is important to know if the positions needed are Unit Leaders, clerks, etc.
Supervisory Position Titles

<table>
<thead>
<tr>
<th>Organizational Level</th>
<th>Title</th>
<th>Support Position</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident Command</td>
<td>Incident Commander</td>
<td>Deputy</td>
</tr>
<tr>
<td>Command Staff</td>
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<td>Assistant</td>
</tr>
<tr>
<td>General Staff (Section)</td>
<td>Chief</td>
<td>Deputy</td>
</tr>
<tr>
<td>Branch Director</td>
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<td>Deputy</td>
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<tr>
<td>Division/Group Supervisor</td>
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<tr>
<td>Unit Leader</td>
<td></td>
<td>Manager</td>
</tr>
<tr>
<td>Strike Team/Task Force</td>
<td>Leader</td>
<td>Single Resource Boss</td>
</tr>
</tbody>
</table>

Incident Commander's Overall Role

The Incident Commander has overall responsibility for managing the incident by objectives, planning strategies, and implementing tactics. The Incident Commander must be fully briefed and should have a written delegation of authority. Initially, assigning tactical resources and overseeing operations will be under the direct supervision of the Incident Commander.

Personnel assigned by the Incident Commander have the authority of their assigned positions, regardless of the rank they hold within their respective agencies.

Incident Commander Responsibilities

In addition to having overall responsibility for managing the entire incident, the Incident Commander is specifically responsible for:

- Ensuring incident safety.
- Providing information services to internal and external stakeholders.
- Establishing and maintaining liaison with other agencies participating in the incident.

The Incident Commander may appoint one or more Deputies, if applicable, from the same agency or from other agencies or jurisdictions. Deputy Incident Commanders must be as qualified as the Incident Commander.
Selecting and Changing Incident Commanders

As incidents expand or contract, change in jurisdiction or discipline, or become more or less complex, command may change to meet the needs of the incident.

Rank, grade, and seniority are not the factors used to select the Incident Commander. The Incident Commander is always a highly qualified individual trained to lead the incident response.

As you learned in Lesson 2, formal transfer of command at an incident always requires a transfer of command briefing for the incoming Incident Commander and notification to all personnel that a change in command is taking place.

Expanding the Organization

As incidents grow, the Incident Commander may delegate authority for performance of certain activities to the Command Staff and the General Staff. The Incident Commander will add positions only as needed.

Command Staff

Depending upon the size and type of incident or event, it may be necessary for the Incident Commander to designate personnel to provide information, safety, and liaison services for the entire organization. In ICS, these personnel make up the Command Staff and consist of the:

- **Public Information Officer**, who serves as the conduit for information to internal and external stakeholders, including the media or other organizations seeking information directly from the incident or event.
- **Safety Officer**, who monitors safety conditions and develops measures for assuring the safety of all assigned personnel.
• **Liaison Officer**, who serves as the primary contact for supporting agencies assisting at an incident.

The Command Staff reports directly to the Incident Commander.

**ICS Organization**

**General Staff**

Expansion of the incident may also require the delegation of authority for the performance of the other management functions. The people who perform the other four management functions are designated as the **General Staff**. The General Staff is made up of four Sections: Operations, Planning, Logistics, and Finance/Administration.

The General Staff reports directly to the Incident Commander.

**ICS Section Chiefs and Deputies**

As mentioned previously, the person in charge of each Section is designated as a **Chief**. Section Chiefs have the ability to expand their Section to meet the needs of the situation. Each of the Section Chiefs may have a Deputy, or more than one, if necessary. The Deputy:

- May assume responsibility for a specific portion of the primary position, work as relief, or be assigned other tasks.
- Should always be as proficient as the person for whom he or she works.

In large incidents, especially where multiple disciplines or jurisdictions are involved, the use of Deputies from other organizations can greatly increase interagency coordination.

**Operations Section**

Until Operations is established as a separate Section, the Incident Commander has direct control of tactical resources. The Incident Commander will determine the need for a separate Operations Section at an incident or event. When the Incident Commander activates an Operations Section, he or she will assign an individual as the Operations Section Chief.
Operations Section Chief

The Operations Section Chief will develop and manage the Operations Section to accomplish the incident objectives set by the Incident Commander. The Operations Section Chief is normally the person with the greatest technical and tactical expertise in dealing with the problem at hand.

Operations Section: Maintaining Span of Control

The Operations function is where the tactical fieldwork is done and the most incident resources are assigned. Often the most hazardous activities are carried out there. The following supervisory levels can be added to help manage span of control:

- **Divisions** are used to divide an incident geographically.
- **Groups** are used to describe functional areas of operation.
- **Branches** are used when the number of Divisions or Groups exceeds the span of control and can be either geographical or functional.

Operations Section: Divisions

Divisions are used to divide an incident *geographically*. The person in charge of each Division is designated as a **Supervisor**. How the area is divided is determined by the needs of the incident.

The most common way to identify Divisions is by using alphabet characters (A, B, C, etc.). Other identifiers may be used as long as Division identifiers are known by assigned responders.

The important thing to remember about ICS Divisions is that they are established to divide an incident into geographical areas of operation.
Operations Section: Groups

Groups are used to describe functional areas of operation. The person in charge of each Group is designated as a Supervisor.

The kind of Group to be established will also be determined by the needs of an incident. Groups are normally labeled according to the job that they are assigned (e.g., Human Services Group, Infrastructure Support Group, etc.). Groups will work wherever their assigned task is needed and are not limited geographically.

Operations Section: Divisions and Groups

Divisions and Groups can be used together on an incident. Divisions and Groups are at an equal level in the organization. One does not supervise the other. When a Group is working within a Division on a special assignment, Division and Group Supervisors must closely coordinate their activities.

Operations Section: Establishing Branches

If the number of Divisions or Groups exceeds the span of control, it may be necessary to establish another level of organization within the Operations Section, called Branches. The person in charge of each Branch is designated as a Director. Deputies may also be used at the Branch level. Branches can be divided into Groups or Divisions — or can be a combination of both.
Operations Section: Branches, Other Factors

While span of control is a common reason to establish Branches, additional considerations may also indicate the need to use these Branches, including:

- **Multidiscipline Incidents.** Some incidents have multiple disciplines involved (e.g., Firefighting, Health & Medical, Hazardous Materials, Public Works & Engineering, Energy, etc.) that may create the need to set up incident operations around a functional Branch structure.

- **Multijurisdictional Incidents.** In some incidents it may be better to organize the incident around jurisdictional lines. In these situations, Branches may be set up to reflect jurisdictional boundaries.

- **Very Large Incidents.** Very large incidents may be organized using geographic or functional Branches.

Managing the Operations Section

While there are any number of ways to organize field responses, Branches and Groups may be used to organize resources and maintain span of control.

Operations Section: Expanding and Contracting

The Incident Commander or Operations Section Chief at an incident may work initially with only a few single resources or staff members.
The Operations Section usually develops from the bottom up. The organization will expand to include needed levels of supervision as more and more resources are deployed.

Task Forces are a combination of mixed resources with common communications operating under the direct supervision of a Leader. Task Forces can be versatile combinations of resources and their use is encouraged. The combining of resources into Task Forces allows for several resource elements to be managed under one individual's supervision, thus lessening the span of control of the Supervisor.

Strike Teams are a set number of resources of the same kind and type with common communications operating under the direct supervision of a Strike Team Leader. Strike Teams are highly effective management units. The foreknowledge that all elements have the same capability and the knowledge of how many will be applied allows for better planning, ordering, utilization and management.

Single Resources may be individuals, a piece of equipment and its personnel complement, or a crew or team of individuals with an identified supervisor that can be used at an incident.
As we covered earlier, it is important to maintain an effective span of control. Maintaining span of control can be done easily by grouping resources into Divisions or Groups.

Another way to add supervision levels is to create Branches within the Operations Section.

At some point, the Operations Section and the rest of the ICS organization will contract. The decision to contract will be based on the achievement of tactical objectives. Demobilization planning begins upon activation of the first personnel and continues until the ICS organization ceases operation.
Planning Section

The Incident Commander will determine if there is a need for a Planning Section and designate a Planning Section Chief. If no Planning Section is established, the Incident Commander will perform all planning functions. It is up to the Planning Section Chief to activate any needed additional staffing.

Planning Section: Major Activities

The major activities of the Planning Section may include:

- Collecting, evaluating, and displaying incident intelligence and information.
- Preparing and documenting Incident Action Plans.
- Conducting long-range and/or contingency planning.
- Developing plans for demobilization.
- Maintaining incident documentation.
- Tracking resources assigned to the incident.

Planning Section: Units

The Planning Section can be further staffed with four Units. In addition, Technical Specialists who provide special expertise useful in incident management and response may also be assigned to work in the Planning Section. Depending on the needs, Technical Specialists may also be assigned to other Sections in the organization.

- **Resources Unit:** Conducts all check-in activities and maintains the status of all incident resources. The Resources Unit plays a significant role in preparing the written Incident Action Plan.
- **Situation Unit:** Collects and analyzes information on the current situation, prepares situation displays and situation summaries, and develops maps and projections.
• **Documentation Unit**: Provides duplication services, including the written Incident Action Plan. Maintains and archives all incident-related documentation.

• **Demobilization Unit**: Assists in ensuring that resources are released from the incident in an orderly, safe, and cost-effective manner.

### Logistics Section

The Incident Commander will determine if there is a need for a Logistics Section at the incident, and designate an individual to fill the position of the Logistics Section Chief. If no Logistics Section is established, the Incident Commander will perform all logistical functions. The size of the incident, complexity of support needs, and the incident length will determine whether a separate Logistics Section is established. Additional staffing is the responsibility of the Logistics Section Chief.

### Logistics Section: Major Activities

The Logistics Section is responsible for all of the services and support needs, including:

- Ordering, obtaining, maintaining, and accounting for essential personnel, equipment, and supplies.
- Providing communication planning and resources.
- Setting up food services.
- Setting up and maintaining incident facilities.
- Providing support transportation.
- Providing medical services to incident personnel.

### Logistics Section: Branches and Units

The Logistics Section can be further staffed by two Branches and six Units.

Not all of the Units may be required; they will be established based on need. The titles of the Units are descriptive of their responsibilities.
The Logistics Service Branch can be staffed to include a:

- **Communication Unit**: Prepares and implements the Incident Communication Plan (ICS-205), distributes and maintains communications equipment, supervises the Incident Communications Center, and establishes adequate communications over the incident.
- **Medical Unit**: Develops the Medical Plan (ICS-206), provides first aid and light medical treatment for personnel assigned to the incident, and prepares procedures for a major medical emergency.
- **Food Unit**: Responsible for providing meals and drinking water for incident personnel, and obtains the necessary equipment and supplies to operate food service facilities at Bases and Camps.
- **Supply Unit**: Determines the type and amount of supplies needed to support the incident. The Unit orders, receives, stores, and distributes supplies, and services nonexpendable equipment. All resource orders are placed through the Supply Unit. The Unit maintains inventory and accountability of supplies and equipment.
- **Facilities Unit**: Sets up and maintains incident facilities. Provides managers for the Incident Base and Camps. Also responsible for facility security and facility maintenance services: sanitation, lighting, cleanup.
- **Ground Support Unit**: Prepares the Transportation Plan. Arranges for, activates, and documents the fueling and maintenance of assigned ground transportation. Arranges for the transportation of personnel, supplies, food, and equipment.

**Finance/Administration Section**

The Incident Commander will determine if there is a need for a Finance/Administration Section at the incident and designate an individual to fill the position of the Finance/Administration Section Chief.

If no Finance/Administration Section is established, the Incident Commander will perform all finance functions.
Finance/Administration Section: Major Activities

The Finance/Administration Section is set up for any incident that requires incident-specific financial management. The Finance/Administration Section is responsible for:

- Contract negotiation and monitoring.
- Timekeeping.
- Cost analysis.
- Compensation for injury or damage to property.

Finance/Administration Section: Increasing Use

More and more larger incidents are using a Finance/Administration Section to monitor costs. Smaller incidents may also require certain Finance/Administration support.

For example, the Incident Commander may establish one or more Units of the Finance/Administration Section for such things as procuring special equipment, contracting with a vendor, or making cost estimates for alternative response strategies.

Finance/Administration Section: Units

The Finance/Administration Section may staff four Units. Not all Units may be required; they will be established based on need.

- **Procurement Unit**: Responsible for administering all financial matters pertaining to vendor contracts, leases, and fiscal agreements.
- **Time Unit**: Responsible for incident personnel time recording.
- **Cost Unit**: Collects all cost data, performs cost effectiveness analyses, provides cost estimates, and makes cost savings recommendations.
- **Compensation/Claims Unit**: Responsible for the overall management and direction of all administrative matters pertaining to compensation for injury and claims related activities kept for the incident.
# ACRONYMS

For the purposes of the NIMS, the following acronyms apply:

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ALS</td>
<td>Advanced Life Support</td>
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<tr>
<td>DOC</td>
<td>Department Operations Center</td>
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<tr>
<td>EMAC</td>
<td>Emergency Management Assistance Compact</td>
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<tr>
<td>EOC</td>
<td>Emergency Operations Center</td>
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<td>EOP</td>
<td>Emergency Operations Plan</td>
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<tr>
<td>FOG</td>
<td>Field Operations Guide</td>
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<tr>
<td>GIS</td>
<td>Geographic Information System</td>
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<tr>
<td>HAZMAT</td>
<td>Hazardous Material</td>
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<tr>
<td>IAP</td>
<td>Incident Action Plan</td>
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<tr>
<td>IC</td>
<td>Incident Commander</td>
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<td>ICP</td>
<td>Incident Command Post</td>
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<tr>
<td>ICS</td>
<td>Incident Command System</td>
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<tr>
<td>IC or UC</td>
<td>Incident Command or Unified Command</td>
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<tr>
<td>IMT</td>
<td>Incident Management Team</td>
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<tr>
<td>JIS</td>
<td>Joint Information System</td>
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<tr>
<td>JIC</td>
<td>Joint Information Center</td>
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<tr>
<td>LNO</td>
<td>Liaison Officer</td>
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<td>NDMS</td>
<td>National Disaster Medical System</td>
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<tr>
<td>NGO</td>
<td>Nongovernmental Organization</td>
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<tr>
<td>NIMS</td>
<td>National Incident Management System</td>
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<tr>
<td>NRP</td>
<td>National Response Plan</td>
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<tr>
<td>POLREP</td>
<td>Pollution Report</td>
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<tr>
<td>PIO</td>
<td>Public Information Officer</td>
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<td>PVO</td>
<td>Private Voluntary Organizations</td>
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<tr>
<td>R&amp;D</td>
<td>Research and Development</td>
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<tr>
<td>Acronym</td>
<td>Description</td>
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<tr>
<td>RESTAT</td>
<td>Resources Status</td>
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<tr>
<td>ROSS</td>
<td>Resource Ordering and Status System</td>
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<tr>
<td>SDO</td>
<td>Standards Development Organizations</td>
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<tr>
<td>SITREP</td>
<td>Situation Report</td>
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<tr>
<td>SO</td>
<td>Safety Officer</td>
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<tr>
<td>SOP</td>
<td>Standard Operating Procedure</td>
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<tr>
<td>UC</td>
<td>Unified Command</td>
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<tr>
<td>US&amp;R</td>
<td>Urban Search and Rescue</td>
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