February 2006

CHIEF OFFICER TRAINING CURRICULUM

OPERATIONS

INSTRUCTOR GUIDE

MODULES 9-18

Final Version
February 2006
COTC-OPS-IG

Chief Officer Training Curriculum--Operations (Modules 9-18)

February 2006

CHIEF OFFICER TRAINING CURRICULUM

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INSTRUCTOR GUIDE

MODULES 9-18

Federal Emergency Management Agency
United States Fire Administration
National Fire Academy

The Federal Emergency Management Agency (FEMA) was established in 1979. FEMA's mission is to focus federal effort on preparedness for, mitigation of, response to, and recovery from emergencies encompassing the full range of natural and manmade disasters.

FEMA's National Emergency Training Center (NETC) in Emmitsburg, Maryland, includes the United States Fire Administration (USFA), its National Fire Academy (NFA), and the Emergency Management Institute (EMI).

To achieve the Academy's legislated mandate (under Public Law 93-498, October 29, 1974), "to advance the professional development of fire service personnel and of other persons engaged in fire prevention and control activities," the National Fire Academy has developed an effective program linkage with established fire training systems that exist at the state and local levels. It is the responsibility of this division to support and strengthen these delivery systems. Academy field courses have been sponsored by the respective state fire training systems in every state.

The staff of the National Fire Academy is proud to join with state and local fire agencies in providing educational opportunities to the members of the nation's fire services.

Course Goal

The goal of the Operations course is to provide an educational experience that will help the newly promoted chief officer or battalion chief to perform competently at an emergency incident. Although emergencies have been reduced at varying rates, they are still the most resource intensive and dangerous component of the emergency services today.

Course Objectives

Upon completing this module, students will be able to:

- Make strategic decisions to effectively manage an emergency incident;
- Develop an Incident Action Plan (IAP) for a complex incident; and
- Preplan for target hazards.

Audience

This training program is intended for newly promoted chief officers or battalion chiefs who are in transition from supervisory responsibilities to managerial responsibilities. These officers have a critical need to look at emergency management in a different way than personnel in lower ranks. The training is designed for these chief officers who will be responsible for strategic decision-making at the incident level, leaving the tactical decision-making to lower-level officers they now lead. In career departments, these chief officers may be at the battalion chief level, while in volunteer or combination volunteer and career departments, these chief officers may have another rank, such as Captain or Lieutenant.

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MODULE 9

MODULE 9

NURSING HOME SIMULATION EXERCISE

MODULE 9:

NURSING HOME SIMULATION EXERCISE

Terminal Objective

Upon completing the module, students will be able to perform the ICS management roles at a nursing home incident.

Enabling Objectives

Students will:

- Identify the critical cues posed at nursing home incidents;
- Establish incident objectives;
- Determine strategies;
- Determine tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage a nursing home incident.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer
- LCD projector

- One portable screen or classroom equipped with screen
- Chalkboard/wipeboard
- Easel pads with markers
- Command Worksheets (may use local fire department worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than “normal” first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who makes command level decisions based on strategic objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities. Some of these hazards are significant and are known as target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

The instructor should carefully read the instructor guide and the student manual and become familiar with the content before presenting the course.

The module combines a lecture and simulation for a nursing home incident. Ensure that students understand the management needs, cues, and ICS organization structure needed at nursing home incidents.

Expanded Written Incident Action Plan

This course is designed for battalion chief level officers operating at target hazard incidents that usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Methodology

This module uses lecture, discussion, and a simulation exercise.

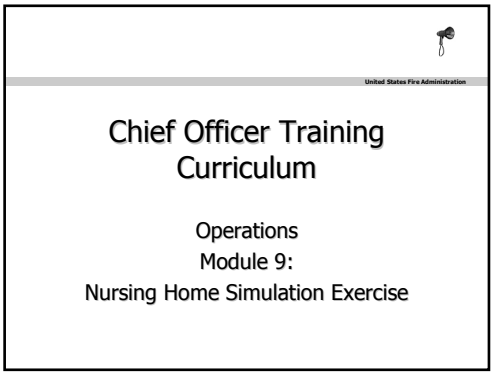
Outline

I. Objectives and Overview ..... 5 minutes
II. Occupancy-Specific Cues ..... 25 minutes
III. Pre-Incident Planning ..... 20 minutes
IV. Incident Considerations ..... 20 minutes
V. Incident Management Cues ..... 10 minutes
VI. Activity 9.1: Nursing Home Simulation Exercise and Debrief ..... 150 minutes
VII. Module Summary ..... 10 minutes
240 minutes

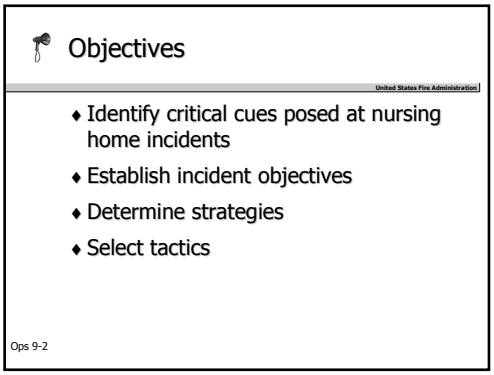
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

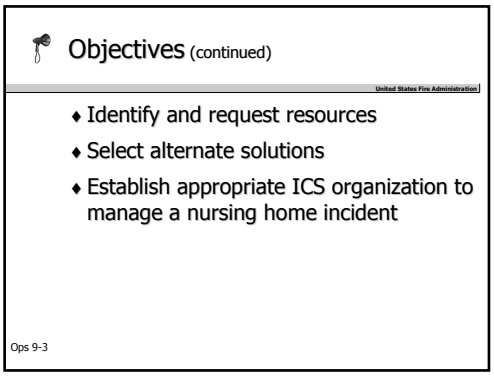
Slide 9-1: Module 9, Nursing Home Simulation Exercise



Slide 9-2:Objectives



Slide 9-3: Objectives (continued)



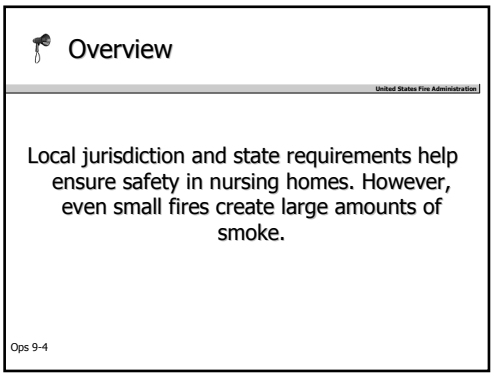
I. Objectives and Overview (5 minutes)

A. Objectives

Students will be asked to:

- Identify the critical cues posed at nursing home incidents;
- Establish incident objectives;
- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage a nursing home incident.

Slide 9-4: Overview

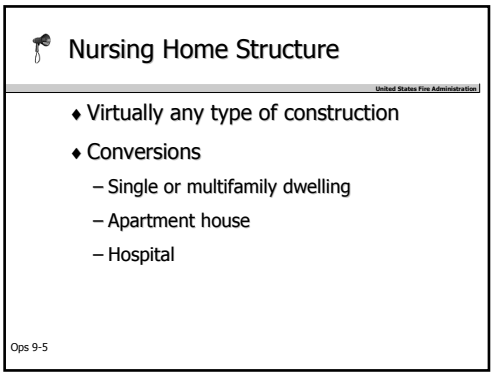


B. Overview

Most nursing homes must meet a number of state and Federal requirements if they are to maintain their licenses. Depending on the local jurisdiction and any state requirements in effect, many nursing homes may be considered relatively safe.

However, even small fires create large quantities of smoke, and this smoke is detrimental to the life safety of the occupants.

Slide 9-5: Nursing Home Structure



II. Occupancy-Specific Cues (25 minutes)

A. Structure

A number of occupancy-specific cues at a nursing home incident warrant consideration, including structural cues such as whether the structure is:

- Fire resistive;
- Noncombustible ;
- Ordinary (masonry, wood-joist);
- Heavy timber;
- Wood frame; or

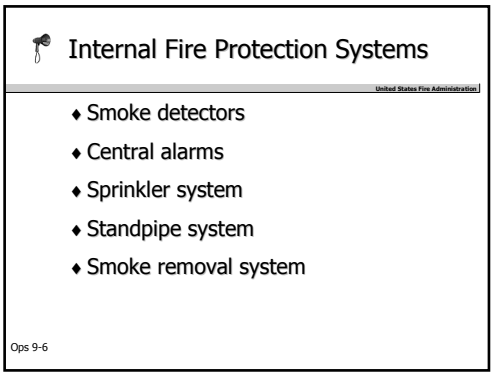
Instructor Notes:

Ask students to identify some of the

problems associated with fires in the conversion-type buildings listed below.

- Conversions:
  - Single-family or multifamily dwelling,
  - Apartment house, or
  - Hospital.

Slide 9-6: Internal Fire Protection Systems



B. Internal fire protection systems

Alarm systems are considered the first line of defense in any habitational occupancy.

However, the alarm systems in many nursing homes may not be maintained well or may fail to function when fires occur.

In addition, nursing home personnel are often reluctant to report fires until they have checked the area.

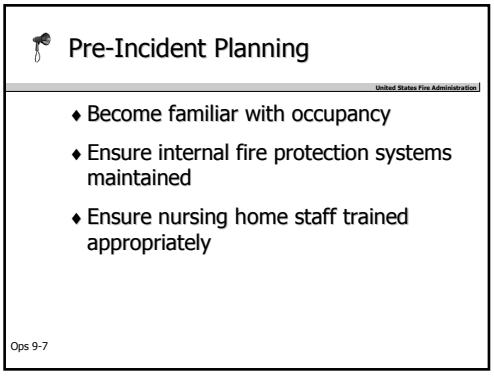
Systems typically found in nursing homes include:

- Smoke detectors;
- Central alarm systems;
- Sprinkler systems:
  - Found only in the newest structures and

- Often in selected areas such as basements and hallways;

- Standpipe systems:
  - Class I systems (1 ½ ”) supplied from the domestic water system:
    - Provide low working pressure and minimal water supply; and
    - Are not considered reliable for primary fire department use;
  - Class II systems (2 ½ ”):
    - May be either wet or dry systems and
    - Are designed for fire department primary use; and
- Smoke removal systems.

Slide 9-7: Pre-Incident Planning



III. Pre-Incident Planning (20 minutes)

Instructor Notes:

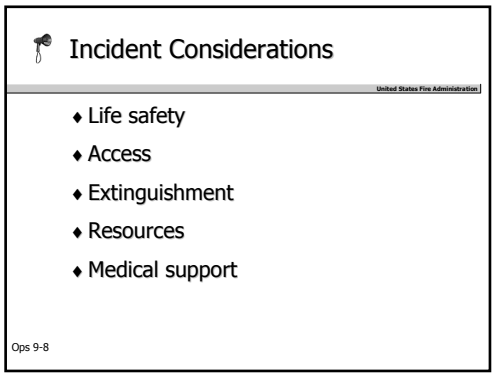
Ask students to name pre-incident planning concerns for nursing homes. List the answers on an easel pad; then cover the following points.

- Familiarization with occupancy should entail:

- The number and condition of occupants:
  - Ambulatory and
  - Nonambulatory, and
- Nursing home personnel on duty;

- The type of construction;
- Access (NFA Quick Access Prefire Plan (QAP));
- Confirmation that internal fire protection systems are well maintained; and
- Knowledge of nursing home fire and evacuation procedures:
  - Ensure staff is trained appropriately:
    - Alert fire department before attempting to control a fire and
    - Regularly practice fire and evacuation procedures;

Slide 9-8: Incident Considerations



IV. Incident Considerations (20 minutes)

Depending on the construction and amount of compartmentation and fire location, fires in nursing homes can usually be contained to a relatively small area.

A. Life safety

- Elderly, nonambulatory occupants:
  - Two- or three-to-one rescue,
  - High staffing requirements, and
  - Susceptible to smoke (pneumonia);
- Separation of fire from occupants;
- Evacuation (may be internal);
- Search and rescue—resource intensive; and
- Nursing home procedures and employees.

B. Access

Access will vary depending on the building design and original code requirements.

- Access to all sides of the structure

may be hampered either by parking lots filled with vehicles or narrow driveways and alleys.

- Access to the fire area may be delayed:
  - If the fire is located on an upper floor,
  - If smoke and heat are in the hallways,
  - If firefighters must travel a long horizontal distance to reach the fire area, or
  - If great lengths of hose are required to reach the fire area.
- The use of ground or aerial ladders may be difficult:
  - Utility poles and wires are common obstructions.
  - Many newer, multistory structures have inoperable windows.
- The selection of specific stair shafts for fire attack, ventilation, and evacuation may be necessary.

C. Extinguishment

- If a sprinkler system must be used in addition to hydrants, it may be necessary to assign additional

resources to deliver the required flow.

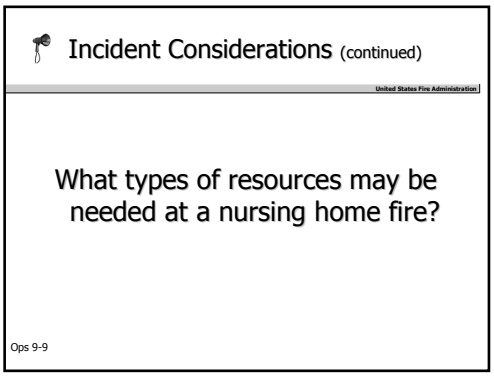
- Extinguishment can be relatively simple if doors to the fire area are closed and vertical lapping does not occur.

- If vertical lapping occurs, the potential for fire on more than one floor exists. The rate of vertical extension depends on several factors:

  * The volume of fire exiting the area of origin and

  * The type and thickness of glass and the window frame material on upper floors.

Slide 9-9: Incident Considerations (continued)



D. Resources

Instructor Notes:

Ask the students what types of resources may be needed at a nursing home fire. List their answers on an easel pad; then cover the following points.

- Patient movement concerns include:

  * Transportation needs,

  * Medical support needs,

  * Shelter needs, and

- The availability of buses;

- Medical unit needs include:
  - Sufficient medic units,
  - Mutual aid,
  - Third party, and
  - Mass Casualty Incident (MCI) unit or trailers;
- Police assistance;
- Air cylinder support;
- Alternate plan for possible escalation;
- Safety of personnel; and
- Handling the media.

E. Medical support

A medical branch or group may have to be established in a multicasualty situation. The following units may have to be established in a medical branch/group:

- Triage,
- Treatment,
- Transportation,
- Medical supply, and

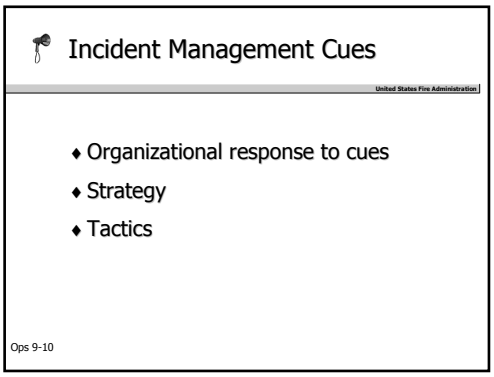
- Morgue.

Some agencies establish medical staging for patient transport vehicles under the transportation unit.

F. Cue-based predictions

- A large number of people may become victims in any fire that produces large amounts of smoke.
- The ability to access floors quickly may be hampered by open stairwells, people evacuating, a limited number of stairwells, or narrow stairwells.
- Lack of a standpipe system may make fire attack more difficult.
- Many occupants are disabled and will require assistance to evacuate the building.
- Fires are often contained to a single room.
- A medical group or medical branch may be required for the injured.

Slide 9-10: Incident Management Cues



V. Incident Management Cues (10 minutes)

A. Organizational response to cues

Coordination of tactics is important:

- Eliminate mixed fire attack modes.
- Coordinate search and rescue.
- Don't delay ventilation.

In response to cues, you may need to establish:

- A vent group for vertical and horizontal ventilation,
- A division on each floor where operations are needed,
- A rescue group—a branch in multistoried nursing homes, and
- A safety officer.

B. Strategy

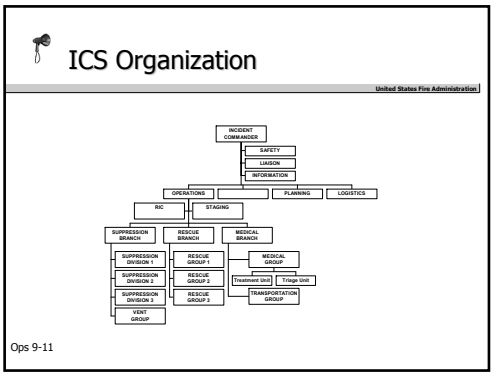
- Effective size-up determines proper strategy.
- Evaluate conditions inside the building as soon as possible.
- Obtain information on the horizontal or vertical extension of the fire.

C. Tactics

- Match problems with resources.
- An immediate, aggressive attack on a fire ensures the safety of the largest number of occupants.
- If an immediate attack is not possible, evacuate the occupants.
- Designate stairwells for attack and evacuation.

  Keep an evacuation stairwell free of smoke by using a stair shaft with a roof opening and by pressurizing the airshaft from below.
- Position separate hose lines to limit fire extension unused in attack.
- Conduct primary and secondary search and rescues.

Slide 9-11: ICS Organization for Multistory Nursing Homes



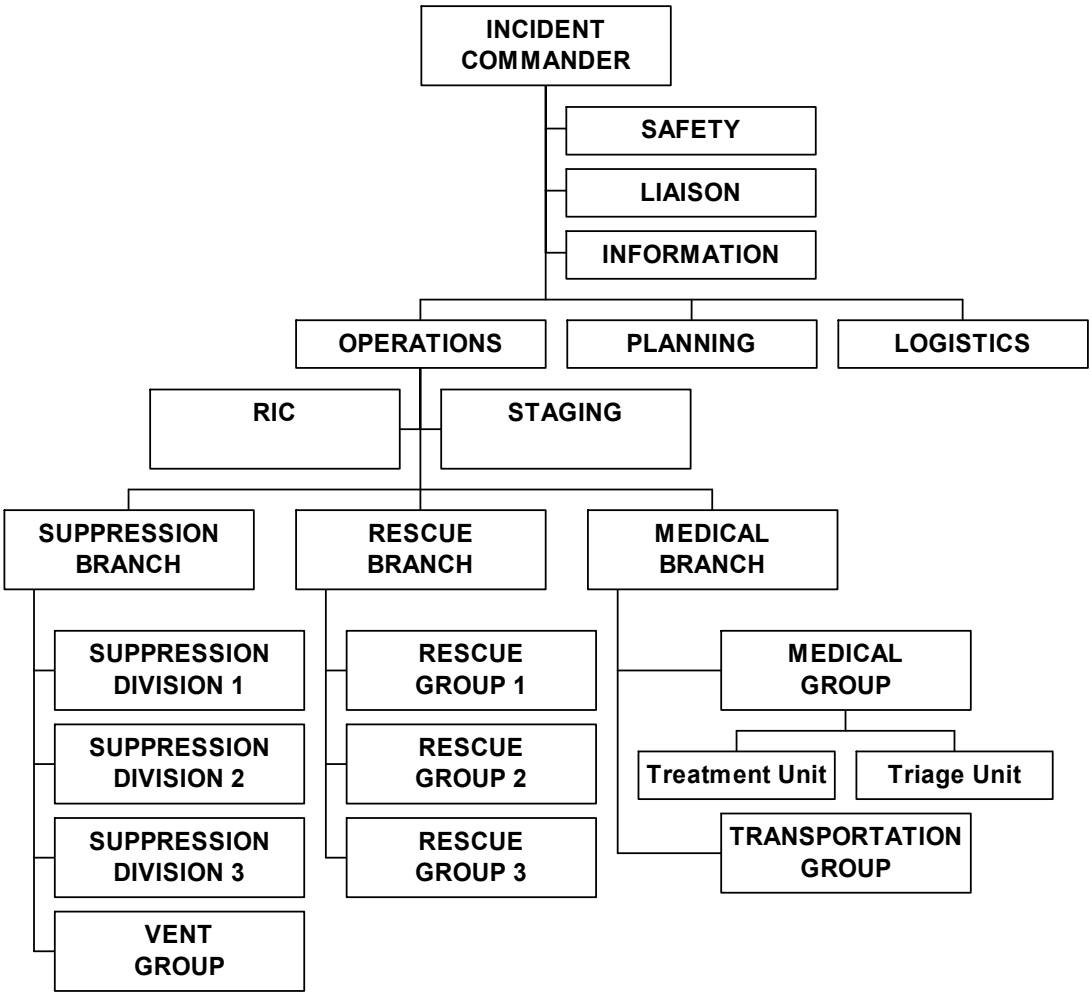
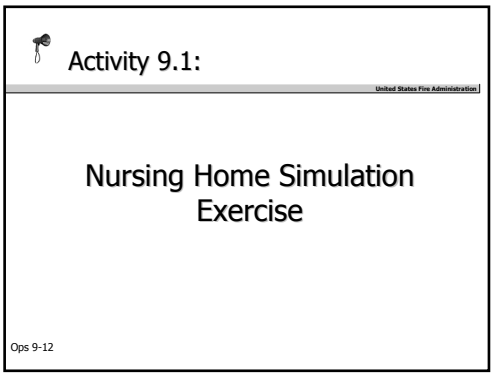


Figure 9-1: ICS Organization for Multistory Nursing Homes

Slide 9-12: Activity 9.1: Nursing Home Simulation Exercise



VI. Activity 9.1: Nursing Home Simulation Exercise and Debriefing (150 minutes)

Instructor Notes:

Refer students to Activity 9.1, Nursing Home Simulation Exercise, in their student manuals.

Activity 9.1:
Nursing Home Simulation Exercise

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a nursing home incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in the appendix), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups.**

   Each group will staff the positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. Review the simulation rules:

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control objectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will identify planning needs using the FOG Position Checklist: develop an alternate plan, collect and record information, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the times listed on each. The time in the upper right corner of each message indicates the

real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

You will play the role of various outside agency representatives and facilities management.

The roles played by an instructor should include:

Facility Manager/Maintenance Person—Report to the groups when asked that the HVAC system can be shut down by the maintenance personnel. There are 120 occupants in the building.
Power Company Rep—Power can be shut off to the building.
Police Supervisor—Make every effort to comply with assistance requests.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening, observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map

- Planning Chief: Alternate plan
- Logistics Chief: Resource list
- Safety Officer: Safety message
- Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.
- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

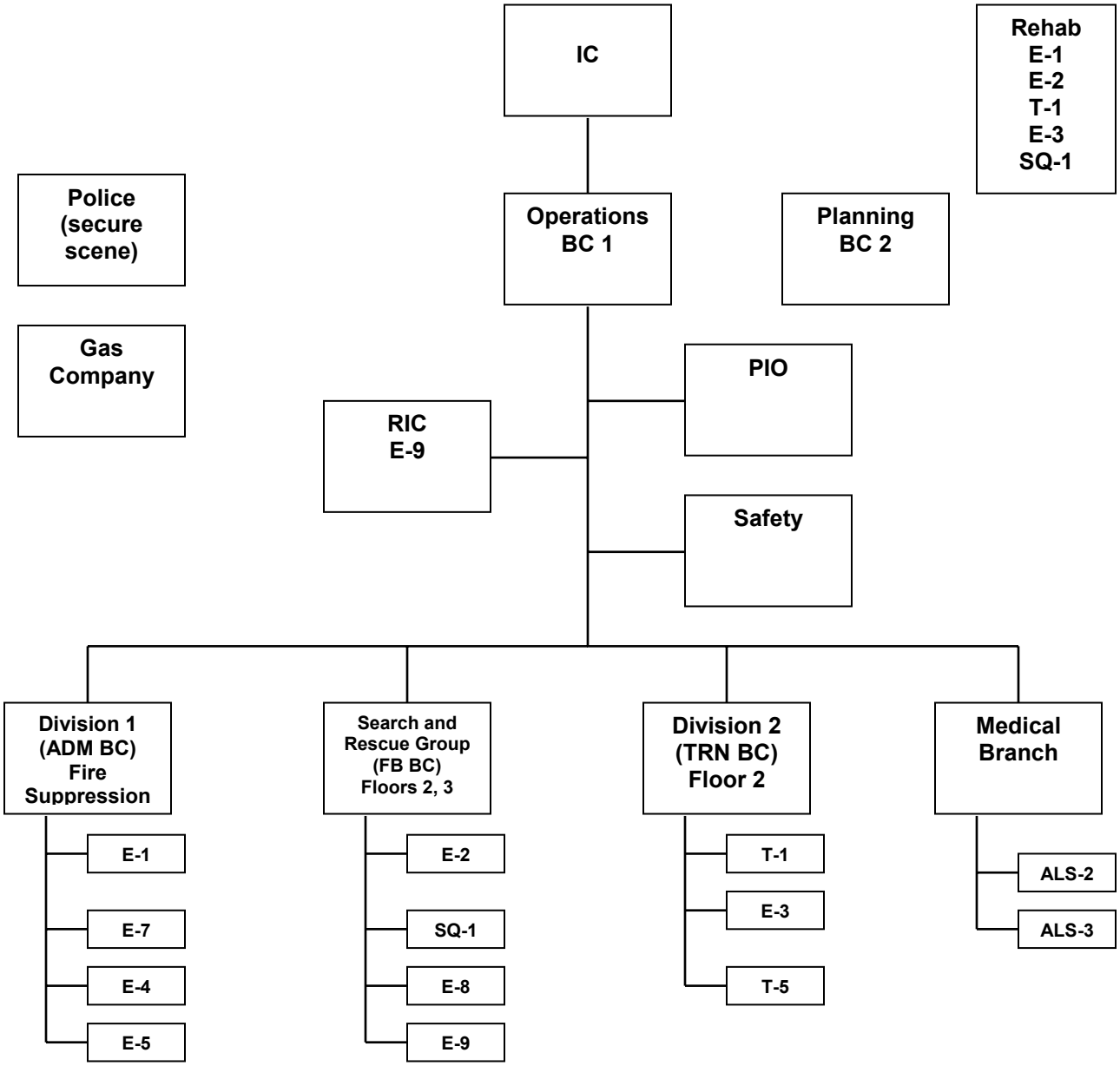
Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and discussing the following questions:

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?

- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Sample Incident Organization

Nursing Home Simulation Exercise



Incident overview:

The three-story building is of ordinary construction, 75 feet x 200 feet, with central alarm, smoke detectors in rooms and hallways, and sprinklers in the basement area. The system is a wet-type suppression system that uses city water. The kitchen facilities are located in the basement with the laundry. Forty residents live on each floor in dormitory-style rooms, four residents per room. Although the majority of the residents in the building are ambulatory, many of the 3rd-floor residents are nonambulatory. Wheelchair residents live on the 1st floor.

Slide 9-13: Nursing Home Side A

Side A—Fronting a 10-lane boulevard, 5 lanes in each direction. Driving lane areas are separated by grass plots.

Slide 9-14: Nursing Home Sides A and B

Sides A and B—Side B exposure is a drive-in carwash.

Slide 9-15: Nursing Home Side C

Side C—Driveway separates nursing home from rowhouse exposures on Side C. Exit stairwells extend past the back of the structure at the east and west end of building. Outcove area and entrance to basement are shown.

Slide 9-16: Nursing Home

Slide 9-17: Nursing Home

The fire occurs at 0600 hours, Sunday, January 29. The outside temperature is 24°F. A staff of six is on duty between 2300 hours and 0700 hours.

Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

Nursing Home

Quick Access Prefire Plan

Building Address: *1340 Federal Blvd.*

Building Description:
3-story/ordinaryconstruction - 75' X 200' W/basement

Roof Construction:
Beam and rafter, 1" x 6" sheathing, composition/asphalt roof covering

Floor Construction:
Beam and joist, 1" x 6" sheathing, hardwood floors

Occupancy Type:	**Initial Resources Required:**
Nursing Home	*1st alarm assignment*

Hazards to Personnel:
Oxygen/Life support system

Location of Water Supply:	**Available Flow:**
Hydrant, 8-inch municipal system 300' apart	*2800 GPM*

	Estimated Fire Flow			
Level of involvement	25%	50%	75%	100%
Estimated fire flow	150	300	450	600

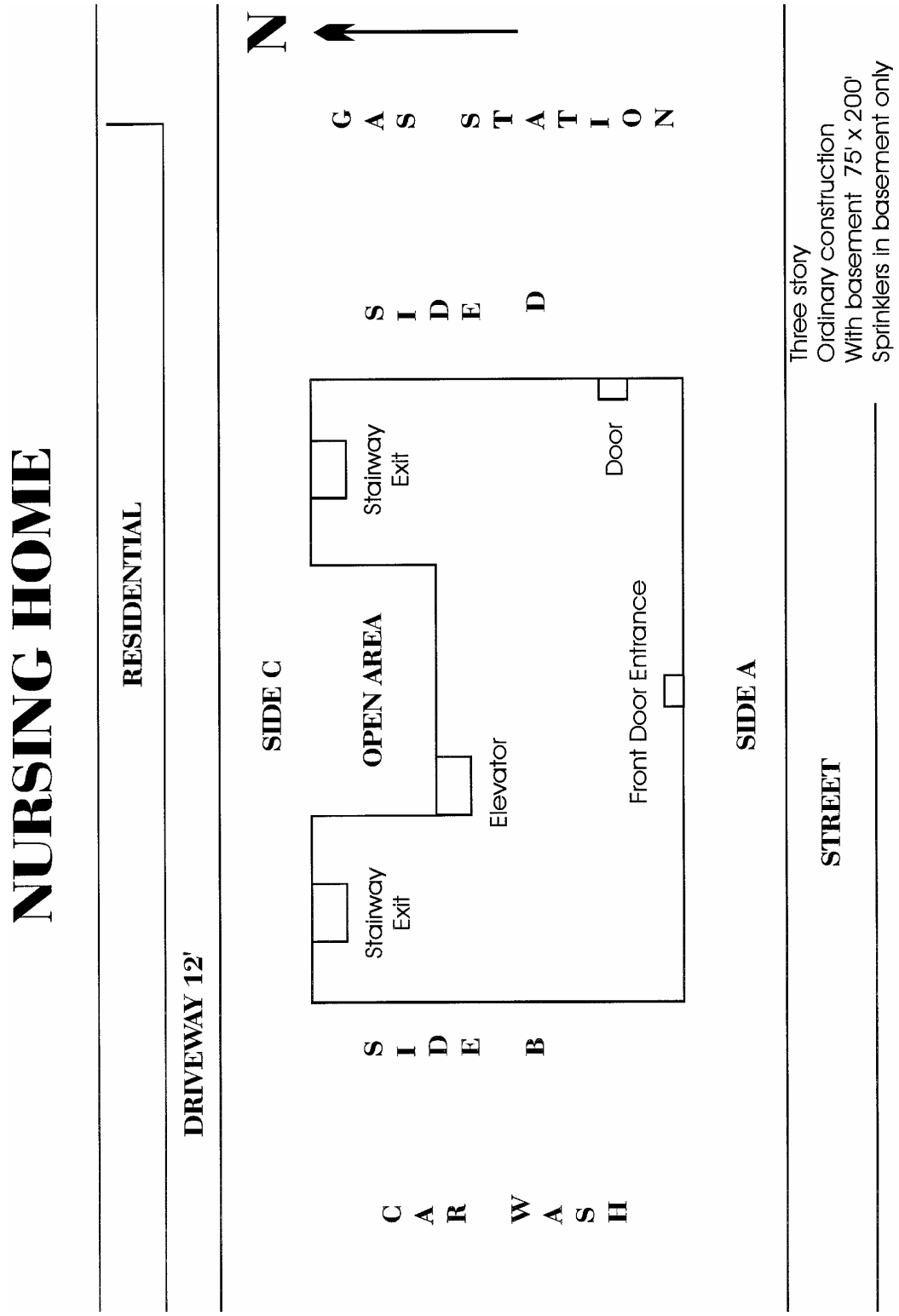
**Fire flow based on common area (lobby, hallways) of 1,200 sq. ft., plus 2 exposure floors.*

Fire Behavior Prediction:
Possible vertical extension. Oxygen feeds fire.

Predicted Strategies:
Rescue, confinement, extinguishment, ventilation

Problems Anticipated:
Nonambulatory occupants—Wheelchair occupants

☐ **Standpipe:**	☒ **Sprinklers:**	☒ **Fire Detection:**
N/A	*Basement only*	


NURSING HOME
RESIDENTIAL
DRIVEWAY 12'
N
SIDE C
OPEN AREA
Stairway Exit
Stairway Exit
Elevator
Door
Front Door Entrance
SIDE A
STREET
CARWASH
SIDE BUILDING
SIDE STATION
Three story
Ordinary construction
With basement 75' x 200'
Sprinklers in basement only

Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card — **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card — **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card — **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card — **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card — **Response time: 20 min.**

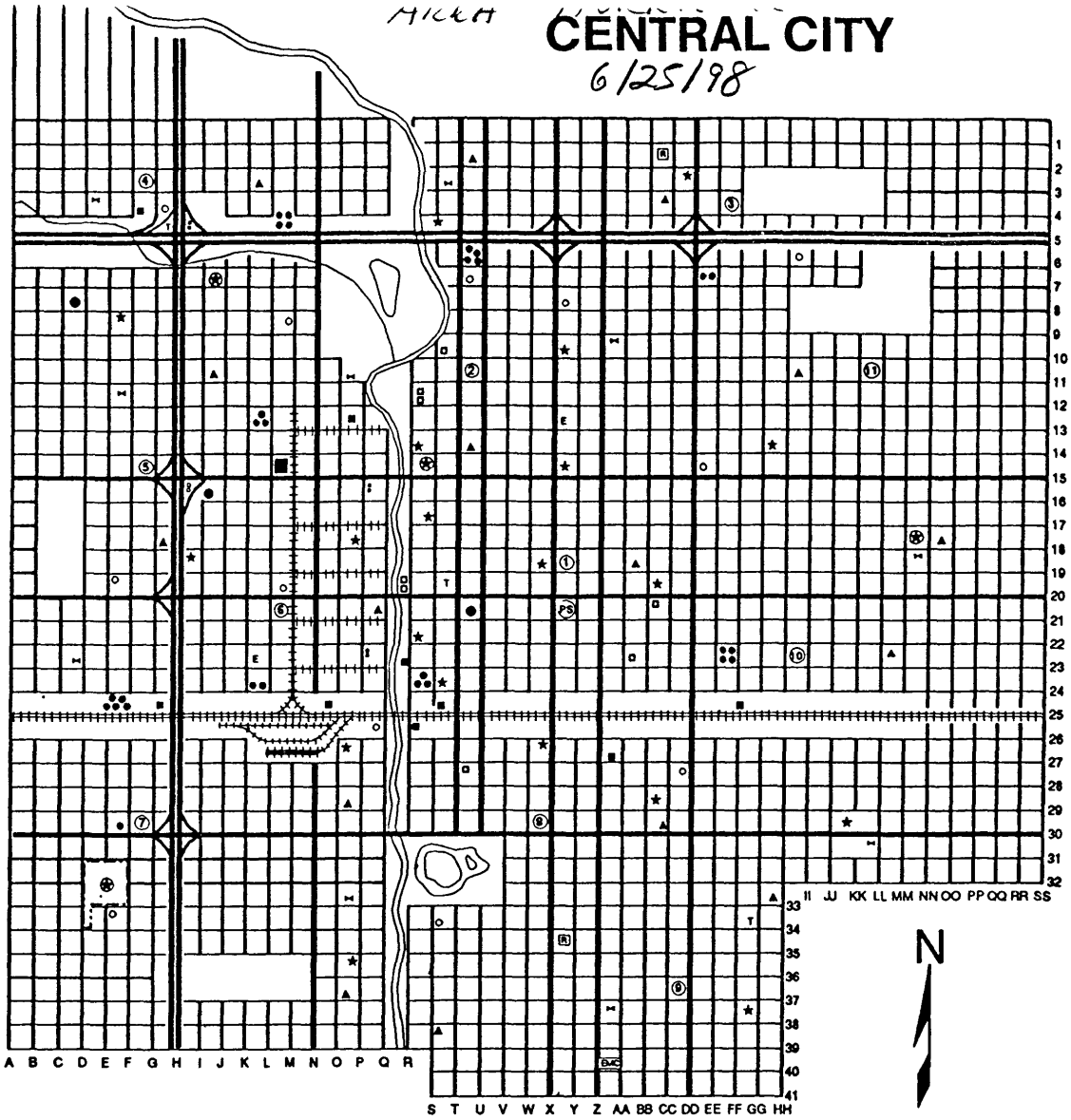
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card — **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card — **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

Instructor Notes:

These messages are examples of possible messages for the incident; adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 0610 hours**

To: Dispatch/Battalion Chief 1

Slide 9-18: Nursing Home Fire, Side A/B

Message:

A fire has been reported at the Boulevard Nursing Home. It is Sunday January 29, 0600 hrs. The outside temperature is 24ºF; wind is 20 mph out of the west.

The home is a three-story building of ordinary construction, 75'x 200', and fully occupied. It is equipped with a central alarm system and sprinkler system in the basement. The sprinkler connection is located on Side B. Kitchen and laundry facilities are located in the basement. Forty residents live on each floor in dormitory-style rooms, four residents per room. Although the majority of the residents in the building are ambulatory, many of the 3rd-floor residents are nonambulatory. Wheelchair residents live on the 1st floor. A staff of six is on duty.

Engine 1 reports there is heavy fire showing from two windows on the 1st floor at the A/B corners. There is medium to heavy smoke throughout the building. Report of many occupants trapped. Engine 1 is establishing Division 1 and is developing a 1-3/4" line for

fire attack on the 1st floor; Truck 1 has been assigned as a search and rescue group for the 1st and 2nd floors. Engine 2 has been assigned as a search and rescue group for the 3rd floor. Engine 3, Squad 1, Rescue 3, MSU 6 and ALS Ambulance 2 have not been assigned. I have requested a second alarm.

Simulation Time: 00:05

SIMULATION MESSAGE

Message #2 **Incident Time: 0615 hours**

To: Operations/Logistics/Planning

Message:

3rd floor search and rescue group reports that there are many nonambulatory occupants still on the 3rd floor. Medium smoke conditions exist throughout the floor. Need more assistance ASAP.

Simulation Time: 00:10

SIMULATION MESSAGE

Message #3 **Incident Time: 0620 hours**

To: Battalion Chief

Message:

The Central City Fire Department Incident Management Team (IMT) has arrived on scene and will be briefed by Battalion 1.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #4 **Incident Time: 0620 hours**

To: Operations/Planning

Message:

Second-alarm companies are in staging.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #5 **Incident Time: 0622 hours**

To: Operations/Planning/Logistics

Message:

2nd floor search and rescue group reports medium to heavy smoke throughout the 2nd floor; there is also a slight build up of heat on 2nd floor, near Side B of building. Many occupants have taken a lot of smoke. Need additional assistance and fresh air bottles ASAP.

Simulation Time: 00:17

SIMULATION MESSAGE

Message #6 **Incident Time: 0623 hours**

Alert all Incident Command Team members.

Slide 9-19: Nursing Home Fire

Fire knocked down on Side A; fire still showing on Side B.

Message:

Division 1 reports fire appears to be confined to a single large room on the 1st floor, Sides A-B.

Simulation Time: 00:18

SIMULATION MESSAGE

Message #7 **Incident Time: 0625 hours**

To: Liaison/Safety/Operations

Message:

Head nurse reports occupants in 1st floor fire room had respiratory problems; there is oxygen in the room.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #8 **Incident Time: 0625 hours**

To: Liaison/Planning/Logistics

Message:

Police commander has arrived at the command post. Do you have anything specific for police to do?

Simulation Time: 00:20

SIMULATION MESSAGE

Message #9 **Incident Time: 0626 hours**

To: Operations/liaison/Logistics

Message:

Nursing home staff is concerned about exposing occupants to cold weather. Where can we temporarily house occupants?

Simulation Time: 00:21

SIMULATION MESSAGE

Message #10 **Incident Time: 0630**

Alert all Incident Command Team members.

Slide 9-20: Nursing Home Fire

Light to medium smoke throughout the building.

Message:

Division 1 reports all visible fire knocked down on 1st floor. Checking for extension.

Simulation Time: 00:25

SIMULATION MESSAGE

Message #11 **Incident Time: 0631 hours**

To: Liaison/Planning/Logistics

Message:

Power and gas companies have arrived on the scene. What do you need from them?

Simulation Time: 00:26

SIMULATION MESSAGE

Message #12 **Incident Time: 0632 hours**

To: Information Officer/Incident Commander

Message:

Media have arrived on the scene. They have reports of many fatalities and are requesting an interview with the information officer ASAP. Prepare a written press release.

Simulation Time: 00:27

SIMULATION MESSAGE

Message #13 **Incident Time: 0633 hours**

To: Operations/Safety/Logistics

Message:

2nd and 3rd floor search and rescue groups need fresh air bottles.

Simulation Time: 00:28

SIMULATION MESSAGE

Message #14 **Incident Time: 0634 hours**

To: Operations/Liaison/Information Officer

Message:

Division 1 reports one DOA in the fire room. Severely burned female.

Simulation Time: 00:29

SIMULATION MESSAGE

Message #15 **Incident Time: 0636 hours**

To: Operations/Logistics/Liaison

Message:

Division 1 reports primary search and evacuation complete on the 1st floor. Six occupants from the 1st floor are suffering from moderate to severe smoke inhalation and will require treatment.

Two additional 1st floor occupants have sustained second-degree burns on both arms and legs and will require further treatment. The burn victims were in the 1st floor fire room when the fire started.

Simulation Time: 00:31

SIMULATION MESSAGE

Message #16 **Incident Time: 0638 hours**

To: Operations/Logistics/Liaison

Message:

2nd floor search and rescue group reports primary search and evacuation complete on the 2nd floor. Ten occupants from the 2nd floor are suffering from moderate to severe smoke inhalation and will require further treatment. No spread of fire to the 2nd floor.

Simulation Time: 00:33

SIMULATION MESSAGE

Message #17 **Incident Time: 0640 hours**

Alert all Incident Command Team members.

Slide 9-21: Nursing Home Fire

Light smoke from building.

Simulation Time: 00:35

SIMULATION MESSAGE

Message #18 **Incident Time: 0641 hours**

To: Incident Commander/Liaison

Message:

The Central City mayor has arrived on the scene; his sister is a 1st-floor resident in the room where the fire started. He is greatly concerned for her condition.

Simulation Time: 00:36

SIMULATION MESSAGE

Message #19 **Incident Time: 0642 hours**

To: Operations/Logistics/Liaison

Message:

3rd floor search and rescue group reports primary search and evacuation of the 3rd floor complete. Nine nonambulatory occupants of the 3rd floor have suffered moderate smoke inhalation and will require further treatment.

One firefighter from Engine 2 has passed out. Need EMS help. He is unconscious, and his breathing is labored.

Simulation Time: 00:37

SIMULATION MESSAGE

Message #20 **Incident Time: 0643 hours**

To: Operations/Logistics/Liaison

Message:

Medical group reports 27 occupants need further treatment and hospitalization. All are suffering from smoke inhalation. Two additional occupants have suffered second-degree burns of their arms and legs, and 18 others are being closely monitored.

Simulation Time: 00:38

SIMULATION MESSAGE

Message #21 **Incident Time: 0645 hours**

To: Incident Commander

Message:

Division 1 reports smoke is light throughout building.

Simulation Time: 00:40

Simulation complete. Take 10 minutes to recap activities.

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Matrix: Nursing Home		
Function	**Message #1**	**Message #2**
Command	Perform size-up, establish control objectives, develop ICS structure.	Support operations' requests for resources.
Safety	Enforce safe corridors of operation. Review special considerations (type of structure/ contents/equipment/use).	Review special considerations (type of structure/ contents/equipment/use).
Liaison	Identify personal contacts. Identify concerned agencies.	Maintain communication with agencies. Identify shelter and/or relocation site.
Information		Gather incident information.
Operations	Identify strategies and tactics. Deploy companies. Determine need for additional resources. Establish fire/EMS ICS operational structure.	Adjust strategies and tactics. Deploy companies. Determine need for additional resources. Establish fire/EMS ICS operational structure.
Planning	Develop action plan. Predict incident progress. Predict resource needs.	Predict incident progress. Predict resource needs. Maintain situation and resource status records. Work with technical specialists.
Logistics	Anticipate breathing air needs. Establish facilities and support for relocation and shelters. Identify other supply and support needs.	Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish facilities and support for relocation and shelters.
Administration/ Finance		

Simulation Matrix: Nursing Home		
Function	**Message #7**	**Message #10**
Command	Support operations' requests for resources.	Support operations' requests for resources.
Safety	Review special considerations (type of structure/ contents/equipment/use).	Consider structural integrity.
Liaison	Maintain communication with agencies. Communicate on building occupant accountability.	Maintain communication with agencies.
Information	Establish media staging area.	Gather incident information. Conduct press briefing.
Operations	Deploy companies. Determine need for additional resources. Maintain active communication with companies. Evaluate progress of operations.	Evaluate progress of operations.
Planning	Modify action plan to meet changing situation. Work with technical specialists.	Plan for demobilization.
Logistics	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims).	Establish facilities and support for rest and rehab areas.
Administration/ Finance		

Simulation Matrix: Nursing Home		
Function	**Message #13**	**Message #19**
Command	Monitor progress and evaluate strategy.	Support operations' requests for resources.
Safety	Enforce safe corridors of operation. Address FF accountability.	Review special considerations (type of structure/ contents/equipment/use).
Liaison		Maintain communication with agencies. Communicate on building occupant accountability. Identify shelter and/or relocation site.
Information		Conduct press briefing.
Operations	Deploy companies.	Deploy companies.
Planning		Maintain situation and resource status records. Work with technical specialists.
Logistics	Anticipate breathing air needs. Establish facilities and support for rest and rehab areas.	Establish facilities and support for relocation and shelters.
Administration/ Finance		Track all costs.

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	

Major Hazards and Risks:

Narrative:

Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Press Questions

What is the current situation?

_____

_____

How many occupants have been injured?

_____

_____

Have there been any deaths reported?

_____

_____

How and where did the fire start? Where did it start?

_____

_____

Did the smoke detectors operate properly?

_____

_____

Why were there no sprinklers in the building?

_____

_____

We have a report that the nursing home staff was short-handed and there was a delay in reporting the fire. Is this true?

_____

_____

Recently, the community has suffered an outbreak of arson incidents. Is this an arson incident?

_____

_____

Why did the bed-ridden occupants live on the upper floors?

_____

_____

Is it true that the mayor's sister is a resident of the home? Has she been injured?

_____

_____

How many firefighters are on the scene?

_____

_____

Activity 9.1:
Nursing Home Simulation Exercise
Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a nursing home incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (A second Aide designated for groups with more than 10.)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

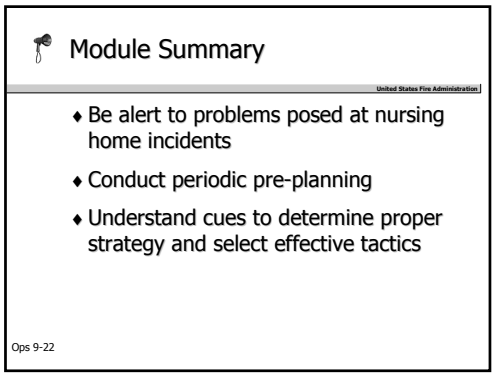
Activity 9.1:
Nursing Home Simulation Exercise
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Slide 9-22: Module Summary



VII. Module Summary (10 minutes)

- Managing a nursing home fire requires mental alertness to the problems posed at the incident.
- Periodic pre-incident planning for nursing homes can help ensure successful fire control and life safety operations at the fire.
- Understanding the cues at a nursing home incident ensures selection of proper strategy and tactics to successfully manage the incident.

MODULE 9

APPENDIX

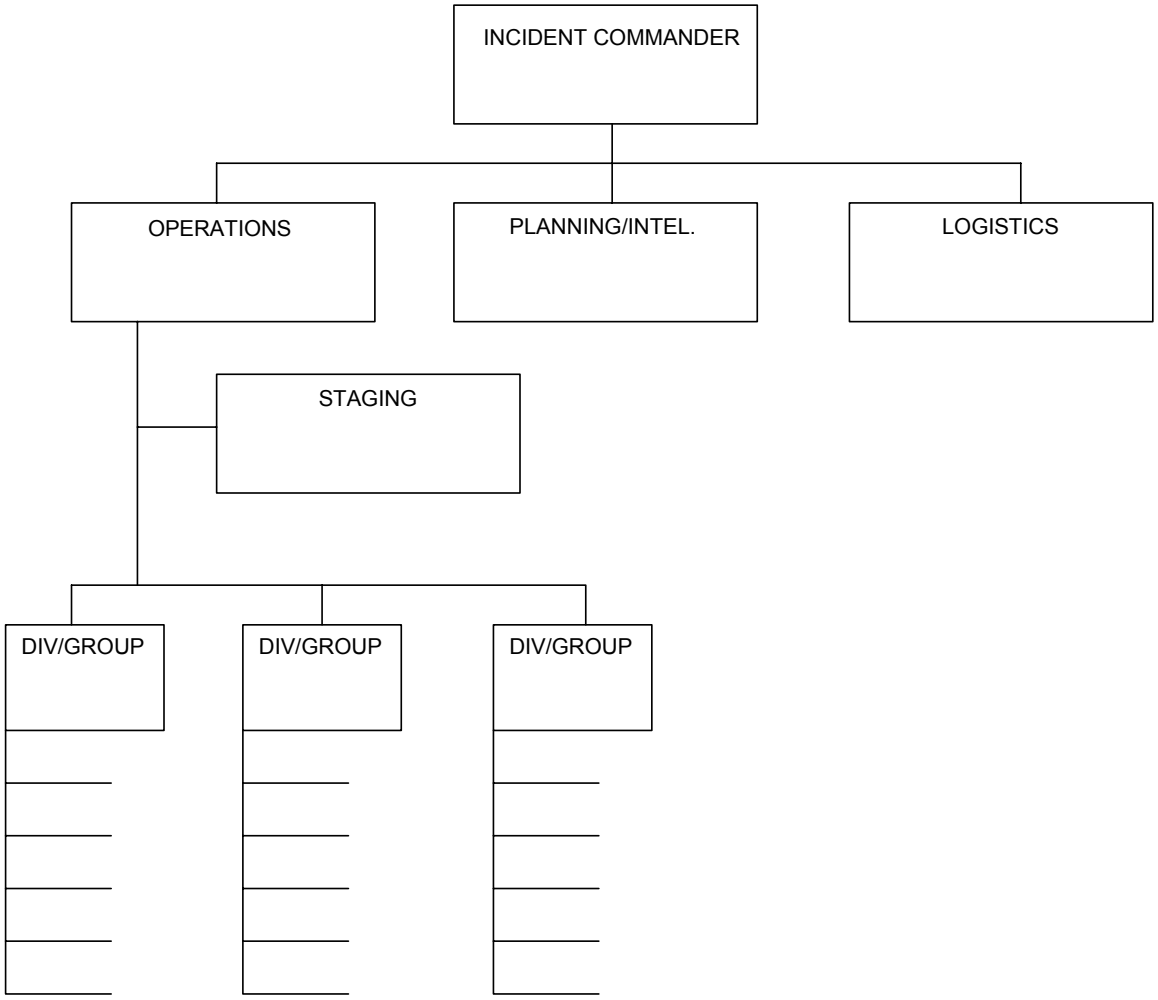
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

MODULE 10

MODULE 10

BULK STORAGE FACILITY/TANK FARM SIMULATION EXERCISE

MODULE 10:

BULK STORAGE FACILITY/TANK FARM SIMULATION EXERCISE

Terminal Objective

Upon completing the module, students will be able to effectively manage an incident at a bulk storage/tank farm facility.

Enabling Objectives

The students will:

- Identify the construction features of bulk storage facilities and tank farms;
- Determine firefighting methods for ground and dike fires around tanks;
- Establish incident objectives;
- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer

- LCD projector
- One portable screen or classroom equipped with screen
- Chalkboard/wipeboard
- Easel pads with markers
- Command Worksheets (may use local fire department's worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than "normal" first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who makes command level decisions based on strategic objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities. Some of these hazards are significant and are known as target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

Expanded Written Incident Action Plan

This course is designed for battalion chief level officers operating at target hazard incidents that

usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

The instructor should carefully read the instructor guide and the student manual and become familiar with the content before presenting the course.

The module combines a lecture and simulation for a bulk storage facility. The incident requires effective management of resources, so during coaching, be particularly alert for anticipation strategies. Ensure that students understand the management needs and ICS organization structure needed at bulk storage facility/tank farm fires.

Methodology

This module uses lecture, discussion, and a simulation exercise.

Outline

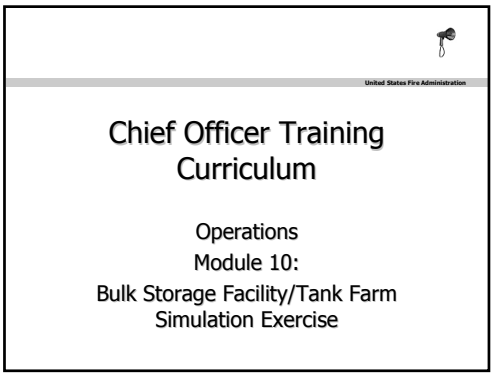
I. Objectives and Overview ..... 5 minutes
II. Open Floating Roof Tanks ..... 15 minutes
III. Covered Floating Roof Tanks ..... 10 minutes
IV. Cone Roof Tanks ..... 10 minutes
V. Tank Vent Fires ..... 5 minutes
VI. Fighting Ground and Dike Fires Around Tanks ..... 20 minutes
VII. Firefighting Agents ..... 15 minutes
VIII. Activity 10.1: Bulk Storage Facility/Tank Farm Simulation Exercise and Debriefing ..... 150 minutes
IX. Module Summary ..... 10 minutes

240 minutes

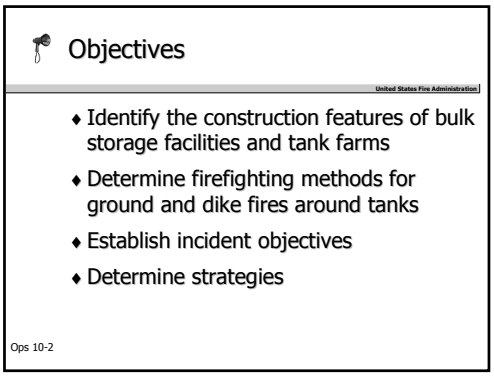
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

Slide 10-1: Module 10: Bulk Storage Facility/Tank Farm Simulation Exercise



Slide 10-2: Objectives



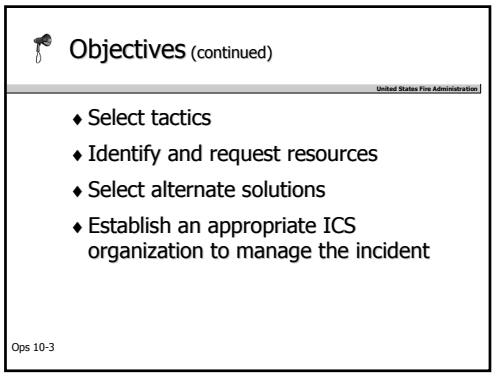
I. Objectives and Overview (5 minutes)

A. Objectives

Students will be asked to:

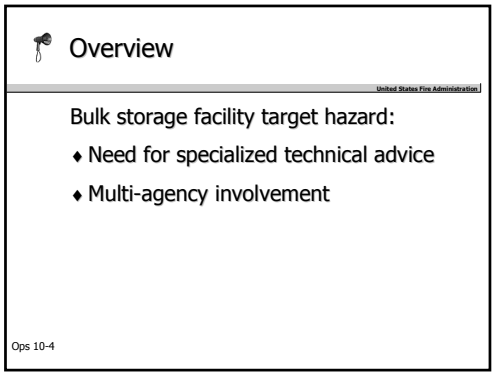
- Identify the construction features of bulk storage facilities and tank farms;
- Determine firefighting methods for ground and dike fires around tanks;
- Establish incident objectives;
- Determine strategies;

Slide 10-3: Objectives (continued)



- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Slide 10-4: Overview



B. Overview

The need for specialized technical advice and multi-agency involvement place bulk storage facilities in the target hazard class.

In this module, we will discuss:

- Roof tank characteristics,
- Tank vent fires, and
- Fighting ground and dike fires around tanks.

A simulation exercise follows the lecture and discussion.

Slide 10-5: Wind Girder

Slide 10-6: Access Stairs

II. Open Floating Roof Tanks (15 minutes)

A. Characteristics

- Wind girder
  - A 360° wind girder around the top portion of the tank shell provides stability for the tank shell.
  - The thickest portion of the tank is at the bottom, while the thinnest portion is at the top.
- Access stairs and heat shield
  - A stairway is provided for access from the ground level.
  - A heat shield is provided for protection.

Slide 10-7: Foam Piping and Hose Line Outlets

- Foam piping system/hose line outlets
  - A foam outlet is provided at the top of the stairs and is protected by a heat shield.
  - The system is pressurized from the ground level.
  - A foam piping system permits foam to be applied to seal the area from the ground level.

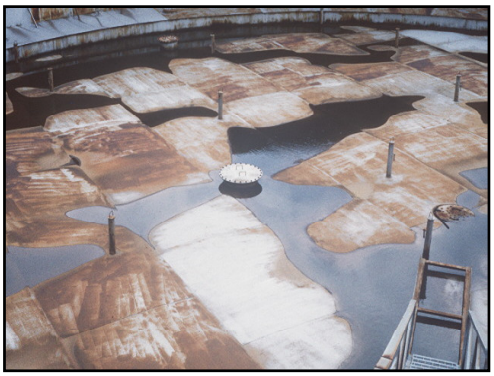
Slide 10-8: Tank Seals

- Tank seals
  - A floating roof is separated from the tank shell either by a panograph arrangement or a neoprene seal.

Slide 10-9: Tanks Seals (continued)

  - The seal is protected by a fabric or metal weather shield.
  - New tanks have a double seal to reduce emissions; this makes a fire inaccessible and more difficult to extinguish.

Slide 10-10: Roof Drain



- Roof drain and roof access ladder
  - Floating roofs have drains that can be opened to drain excess water from the roof.
  - Stairs are available to access the roof and wind girder.
  - The roof has vents and manway access points. Breathing apparatus is required when on the roof. This is and IDLH.

Slide 10-11: Drain Valve from Roof

- A drain valve from roof drain is located at the bottom of tank and is used to drain excess water from the tank roof.

Slide 10-12: Geodetic Tops

- Geodetic tops
  - Certain open floating roof tanks have this protective covering.
  - Made of lightweight metal, these tops are designed to burn away quickly under fire conditions.
  - Geodetic tops also provide

additional protection against the weather.

B. Open floating roof tank fires

- Most fires occur around the weather shield area and tank shell.
- These fires can be extinguished from the wind girder, the top of the stairs, or from the floating roof.
- Breathing apparatus must always be worn.
- When large portions of the seal area are involved, it is preferable to have at least two hose streams working around the wind girder in opposite directions.
- Most wind girders do not have a railing; be careful when working from these girders.
- If a fire is burning beneath the stairs and prevents access, use portable towers, foam monitors, or streams from elevated platforms.
- Exercise caution so that excessive amounts of foam do not flow onto the roof, causing the roof to sink.
- An observer should be watching applications closely.

- If a seal has been burning for a long time, apply cooling water to the outside of the tank shell.
- The need to use cooling water will be indicated by blistering or discoloring of the shell paint.
- Avoid directing large, straight streams of foam or water onto the flammable product at the damaged roof seal: this could intensify the fire.
- Good foam-aspirating nozzles are needed, regardless of the type of foam used.
- When foam is delivered from grade level, it is difficult to get sufficient foam into the annular space. Foam has a tendency to flow onto the roof. In this event, immediately open the roof drains to reduce the possibility of sinking the roof.
- Monitor the drain valve area for product release.
- If the roof sinks, there will be complete involvement of the entire liquid surface.
- Flammable liquids (flashpoint below 100°F [38°C]) are normally stored in these types of tanks.

Slide 10-13: Covered Floating Roof

Slide 10-14: Covered Floating Roof (continued)

III. Covered Floating Roof Tanks (10 minutes)

A. Characteristics

- Covered floating tanks have an internal floating roof/pan.
- A cone roof is identified by exterior vents (eyebrows).
- Cone roofs have a weak seal-to-roof joint.
- The roof is designed to separate from the shell joint in the event of an ignition source and explosion.
- The roof can remove itself in one piece or in fragments, and parts can travel a considerable distance.
- Flammable liquids (flashpoint below 100°F) are normally stored in these types of tanks.
- An internal foam system may be delivered through fixed foam chambers.

B. Covered floating roof tank fires

- These tanks usually do not hold an ignitable mixture except during periods of initial fill and up to 18 to 25 hours thereafter.

- Seal or rim fires are virtually impossible to fight in a covered roof tank with portable fire extinguishing equipment.

- Side vents are too small to permit access with foam streams directed from ground level.

- On some occasions, cone roofs have blown off, thus involving the entire surface area. If this occurs, the floating roof or pan may sink.

- In these situations, the fire should be treated as a cone roof fire and extinguished by monitor nozzles or other topside applications.

- Subsurface injection is not recommended, since the roof, either afloat or in a sunken state, could obstruct foam travel to the tank surface.

Slide 10-15: Cone Roof Tank

IV. Cone Roof Tanks (10 minutes)

A. Characteristics

- Cone roof tanks have no floating roof.

  * They appear similar to covered floating roof tanks; however, there are no external side vents at the top of the tank.

* Tanks have a vapor space between the liquid and the underside of the roof.

* If the vapor space is in the explosive range and an ignition source is introduced, an explosion will occur.

* The roof may separate from the shell joint if an explosion occurs.

* The roof may separate in one piece, or fragments could travel a considerable distance. Other times, the roof may fall back into the tank or remain intact.

- Current standards dictate that only combustible liquids are stored in these tanks, but this is not always the case.

- Consider foam application from internal foam chambers if available.

B. Cone roof tank fires

- Fires normally involve the entire surface area of the tank.

- The two extinguishment options are topside and subsurface.

- If a fire involves a polar solvent, the extinguishment technique is

limited to topside application with alcohol-resistant foams only.

- When a topside application is indicated for hydrocarbon fuels, use fixed-foam systems, foam towers, high-capacity monitor nozzles, or elevated platform devices.

Slide 10-16: Pressure Vacuum Vent

V. Tank Vent Fires (5 minutes)

Pressure Vacuum Vents (PVVs) control pressure differences in tanks.

- Fires burning in PVVs with a yellow or orange flame and emitting black smoke indicate that the vapor/air mixture in the tank is above flammable or explosive limits. This type of fire can be extinguished readily with a dry chemical.

- A fire burning in a tank vent with a snapping blue-red, nearly smokeless flame indicates the vapor/air mixture in the tank is flammable and explosive. As long as the tank is outbreathing through the PVV, the flame cannot pass from the low-pressure side through the PVV into the high-pressure side of the tank. However, extinguishment with a dry chemical should be accomplished quickly to avoid flashback into the tank if heat damages the PVV.

- Reducing the pressure in the tank will extinguish the fire when the PVV closes. This can be accomplished by applying cooling water to the tank roof and shell.

- Maintain a positive pressure in the tank by introducing fuel gas. When a vapor-rich condition is indicated by the change of flame character, extinguishment can be accomplished with dry chemical.

Slide 10-17: Fighting Ground and Dike Fires Around Tanks

VI. Fighting Ground and Dike Fires Around Tanks (20 minutes)

A. Extinguish all ground fires first.

- Apply cooling water to all flame-exposed metal as soon as possible.

- Close pertinent valves under the cover of water spray.

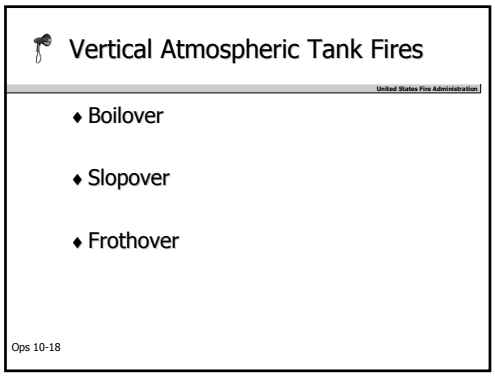
- Displace sufficient hydrocarbon with water to produce a water leak rather than a hydrocarbon fire. Water pressure must be greater than the hydrocarbon pressure in the tank. Do not overfill the tank.

- Gain control of the dike drains, the roof drain, and the water drain valves.

- When tanks that contain a high-

flashpoint oil are exposed to ground fires, be aware of the possibility of a flammable mixture being created in the tank that can be ignited by the hot metal tank shell.

Slide 10-18: Vertical Atmospheric Tank Fires



B. Vertical atmospheric tank fires

- Boilover
  - Boilover occurs mostly with crude oil.
  - There must be a major fire involving the entire liquid surface.
  - Boilover occurs only in tanks with no floating roof.
  - When the crude oil burns, the light volatile fractions distill and burn off. The unvaporized hot (300°F or 149°C) residue, which is more viscous than the cold oil, begins to sink.
  - As the fire progresses, the lighter fractions continue to distill at the interface between the hot residue layer and the cold crude oil. The burning vapor supplies the heat that continues the distillation.
  - As the residue layer increases in depth, the interface moves downward two to three times

faster than the burn-off rate at the oil's surface.

* The hot residue is called the heat wave layer, and the interface is called the heat wave front.

* Crude oil tanks normally contain water or wet emulsion bottoms.

* As the hot interface reaches the water or emulsion in the bottom of the tank, it flashes the water into steam. At 400°F (204°C), water expands 2,000 times, to a frothy steam mixture.

* A good rule of thumb for the distance a boilover may travel is ten times the diameter of the tank.

* Medium crudes are most likely to boil over.

* To estimate the time of a boilover, check the progress of the heat wave front by applying water to the tank shell, noting the location of the interface by the steam generated above the heat wave front. The heat wave front advances downward about 18 to 36 inches per hour.

* An imminent boilover is

generally indicated by an increase in flame height and brightness.

* The best method to prevent boilover is to extinguish the fire rapidly. Foam application should begin within 30 minutes of ignition.

- Slopover

  * Slopover can result when a water stream is applied to the hot surface of burning oil, provided the oil is viscous and its temperature exceeds the boiling point of water.

  * Since only the surface is involved, a slopover is a relatively mild occurrence.

- Frothover

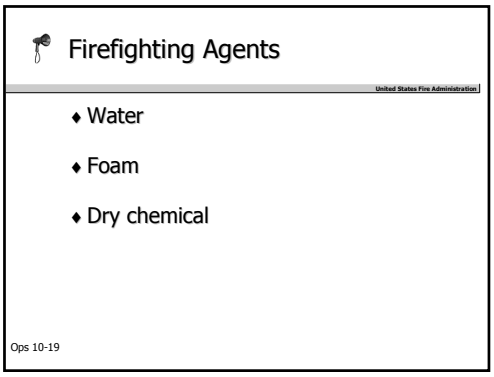
  * Frothover means the overflowing of a tank not on fire when water or volatile hydrocarbons boil under the surface of hot, viscous oil.

  * An example would be when hot asphalt is loaded into a tank car that contains some water. The hot asphalt is cooled initially by contact with the cold metal, and at first, nothing may happen; later the water can become superheated. When it finally

starts to boil, the asphalt may overflow the tank car.

* A similar situation can arise when a tank used for storing slops or residue at temperatures below 200°F (93°C) and containing a water bottom or wet emulsion receives a substantial addition of hot residue at a temperature above 212°F (100°C). After sufficient time has elapsed for the effect of the hot oil to reach the water in a tank, a prolonged boiling action can occur, which can remove a tank roof and spread froth over a wide area.

Slide 10-19: Firefighting Agents



VII. Firefighting Agents (15 minutes)

A. Water

- Water has the greatest heat-absorbing quality.
- It is used to cool equipment, structures, and tank shells that are exposed to fire, and to prevent or reduce both heat damage and overpressure that result from overheating a vessel.
- When properly applied, water can extinguish hydrocarbon fires having a flashpoint above 100°F.
- Water applied lightly to burning

viscous liquids with flashpoints above 2,000°F (1,093°C) can produce a layer of froth on a liquid surface that acts like foam and smothers the fire.

- Water can be used as a displacement medium in leaking hydrocarbon lines, or it may be used to float liquid hydrocarbons above a leak in a tank to interrupt product leakage.

- Water can be used effectively to control, but not extinguish, fires in low-flashpoint fuels.

B. Foam

- Foams are used principally to form a cohesive floating blanket on a fuel surface that extinguishes the fire by smothering and cooling the fuel. They prevent ignition by averting formation of combustible mixtures of vapor and air.

- Foams are particularly suited for extinguishing two-dimensional, flat, flammable liquid fires that involve spills or storage tanks.

- To achieve extinguishment of a tank fire or liquid fire of depth, continuous foam application at the required rate is critical.

- It is essential that the total

required amount of foam concentrate be on hand before the application process begins.

- Unless the required rate of foam is applied and maintained on the liquid surface until a sealing, cohesive foam blanket is established, the fire will not be extinguished.

- Consider the type of foam available. If ATC is used, you can use polar solvents. AFFF is not effective on polar solvent.

Instructor Notes:

Place the following formula on a flipchart and walk the students through the process.

Formula for required rate of foam to extinguish a tank fire:

Surface area of tank = Πr^2

Solution required per sq. ft. = 0.16

Percent of concentrate being used = 0.03 or 0.06

Required application time = 30 or 60 mins.

Πr^2 · solution required per sq. ft. · percent of concentrate being used · total application time = total gallons of foam concentrate required to deliver the appropriate foam solution for one hour.

Example: 10,000-square foot tank

Step 1:

10,000 sq. ft. · 0.16 = 1,600 gallons of foam solution required per minute.

Step 2:

1,600 gpm · 0.03 = 48 gallons of foam concentrate required per minute to produce 1,600 gpm.

Step 3:

48 gpm · 60 minutes = 2,880 gallons of concentrate required for a 1-hour application of 1,600 gpm of solution to extinguish a flammable liquid tank fire.

A 60-minute application rate required for flammable liquids.

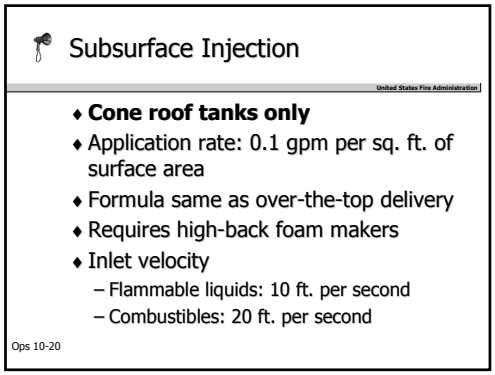
A 30-minute application rate required for combustible liquids.

C. Dry chemical

- Dry chemicals can be used to extinguish three-dimensional fires.

- When using dry chemicals in conjunction with foam, it is important that they are compatible. There are some dry chemicals that are not compatible with certain foam solutions.

Slide 10-20: Subsurface Injection



Slide 10-21: Foam Nozzle

Slide 10-22: Cooling Water

D. Subsurface injection

- Subsurface injection is not recommended for internal or external floating roof tanks. It is recommended only for cone roof tanks.
- The application rate for this technique is 0.1 gpm per square foot of surface area.
- The formula is the same as for over-the-top delivery.
- High-back foam makers are required.
- The inlet velocity of foam into a tank is critical. In the case of flammable liquids, it should not exceed 10 feet per second. Combustibles will tolerate 20 feet per second.

E. Cooling water

- Cooling of adjacent tanks is usually unnecessary unless there is direct flame contact or sufficient radiant heat to scorch the paint.
- Check the temperature and heat absorption of a tank by applying water to its side to see if steam is produced.

Slide 10-23: Steam

Slide 10-24: Steam (continued)

Slide 10-25: Water on Roof

- For best results, water should be fanned on the sides and roof; this does not, however, apply to roofs of floating roof tanks.
- Heat on the shells of tanks containing stocks with an oil temperature above atmospheric temperature may bring the vapor space of the tank within the flammable range.

Slide 10-26: Water on Roof (continued)

- Heat on the shells of tanks containing low-flashpoint stocks may cause the tank pressure to rise and expel flammable vapors, which may ignite or cause failure to the tank.

Slide 10-27: Water on Roof (continued)

- A common error in tank firefighting is using too much cooling water on exposures.

  This can rob volume and water pressure from the water supply, and overtax sewers and drainage ditches, making firefighting difficult.

Slide 10-28: Dikes

F. Dikes

- Excessive water in a dike area can cause a leaking product to overflow the dike's containment.

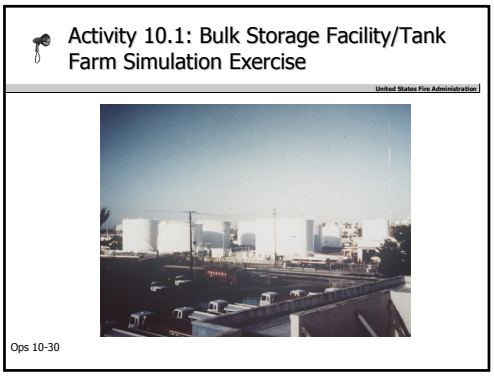
- Dikes should be monitored constantly during firefighting operations.

- Excessive water should be removed to another containment area until the fire is extinguished.

Slide 10-29: Dikes (continued)

- Vapors can build up in dike areas.

Slide 10-30: Activity 10.1: Bulk Storage Facility/Tank Farm Simulation Exercise



VIII. Activity 10.1: Bulk Storage Facility/Tank Farm Simulation Exercise and Debriefing (150 minutes)

Instructor Notes:

Refer students to Activity 10.1, Bulk Storage Facility/Tank Farm Simulation Exercise, in their student manuals.

Activity 10.1:
Bulk Storage Facility/Tank Farm Simulation Exercise

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a bulk storage facility/tank farm incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in the appendix), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups:**

   Each group will staff the positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. **Review the simulation rules:**

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control objectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will identify planning needs using the FOG Position Checklist: develop an alternate plan, collect and record information, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the times listed on each. The time in the upper right corner of each message indicates the

real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening, observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
- Planning Chief: Alternate plan
- Logistics Chief: Resource list
- Safety Officer: Safety message
- Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.

- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and discussing the following questions:

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?

- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Instructor Notes:

When debriefing, you should ensure that students establish the proper foam application rate for a 100-foot diameter tank:

Proper foam application rate:

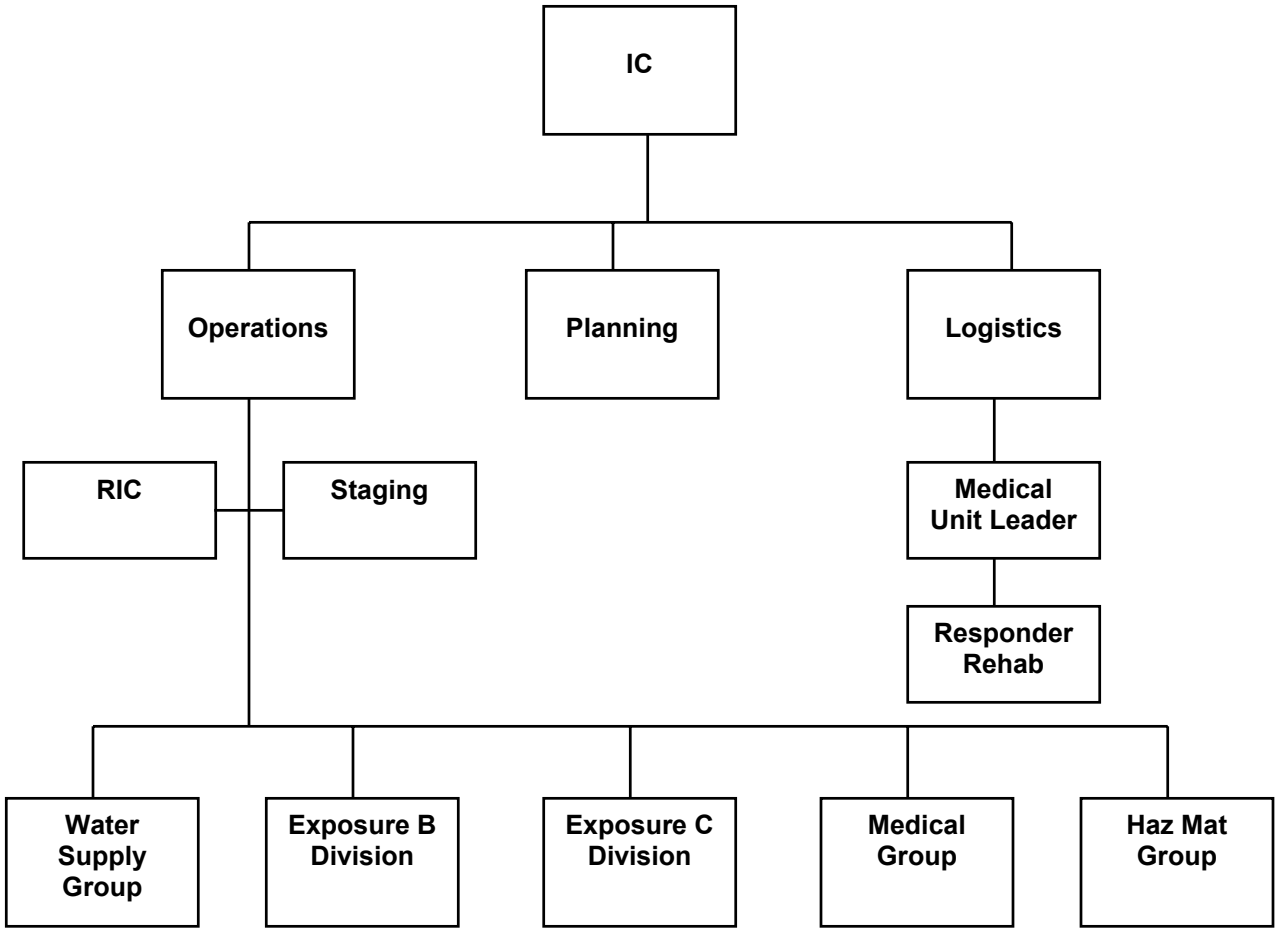
1,256 gpm solution per minute for 1 hour.

37.68 gallons (3 percent) of foam concentrate per minute to support per-minute application.

2,220 gallons of foam concentrate to support 1-hour application.

Sample Incident Organization

Bulk Storage Facility/Tank Farm Simulation Exercise



Incident overview:

The incident occurs at a bulk storage facility that serves Central City and the surrounding area with a variety of petroleum products. It contains combustible and flammable liquids. The Beeline Oil Company is located at U and 6th Street.

Slide 10-31

Slide 10-32

Slide 10-33

The incident begins on a Friday afternoon in July. The wind is gusting to 20 mph out of the southwest. At approximately 1635 hours, a thunderstorm moved through the area ahead of a front. Lightning struck the number 5 tank, which tore a hole 35’ x 6’ in the roof of the tank and ignited the product. It also opened a 15’ x 4’-hole at the rear of the tank. The remainder of the roof has been disfigured. Flames are visible on Sides B and D of the tank.

1. All tanks in dike area of the fire tank are internal floating roof tanks.

2. All tanks in adjacent dike area (Side B) are external floating roof tanks.

3. There are four tanks in each dike area.

4. Each internal floating roof tank has three foam chambers that may be pressurized outside the dike area.

5. All tanks in both dike areas are 48’ high x 100’ in diameter.

6. The water supply is from an 8-inch private hydrant system in the plant. The flow is 1,000 gpm.

7. The facility has a 1,000-gpm foam pumper with 500-gallon foam tank.

8. The plant has 500 gallons of foam in storage (5-gallon cans).

9. No tanks are set up for subsurface injection. If subsurface injection is used, it will have to be improvised.

Proper foam application rate:

1,256 gpm solution per minute for 1 hour.

37.68 gallons (3 percent) of foam concentrate per minute to support per-minute application.

2,220 gallons of foam concentrate to support 1-hour application.

Though this is a large fire, it does not grow much beyond where it is at the beginning of the exercise. Students will need to address the potential for growth, however, because weather conditions and fuel load all present conditions that could turn the event catastrophic. The command team will need to organize quickly, as everyone arrives almost simultaneously. Resources will need to be deployed for containment, and firefighter safety should be given primary emphasis.

Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

Bulk Storage Facility/Tank Farm

Quick Access Prefire Plan

Building Address: *U & 6th Street*

Building Description:
Bulk storage plant--flammable and combustible materials
Storage tanks 48' X 100'
Cylindrical
Roof Construction:
Internal floating pan with cone roof
External floater--external floating pan roof with wind girder
Floor Construction:
N/A

Occupancy Type:	**Initial Resources Required:**
Bulk storage facility	*1st alarm assignment*

Hazards to Personnel:
Flammable/Toxic materials

Location of Water Supply:	**Available Flow:**
8-inch private yard system	1,000-gpm hydrant

	Estimated Fire Flow			
Level of Involvement				
Estimated Fire Flow				

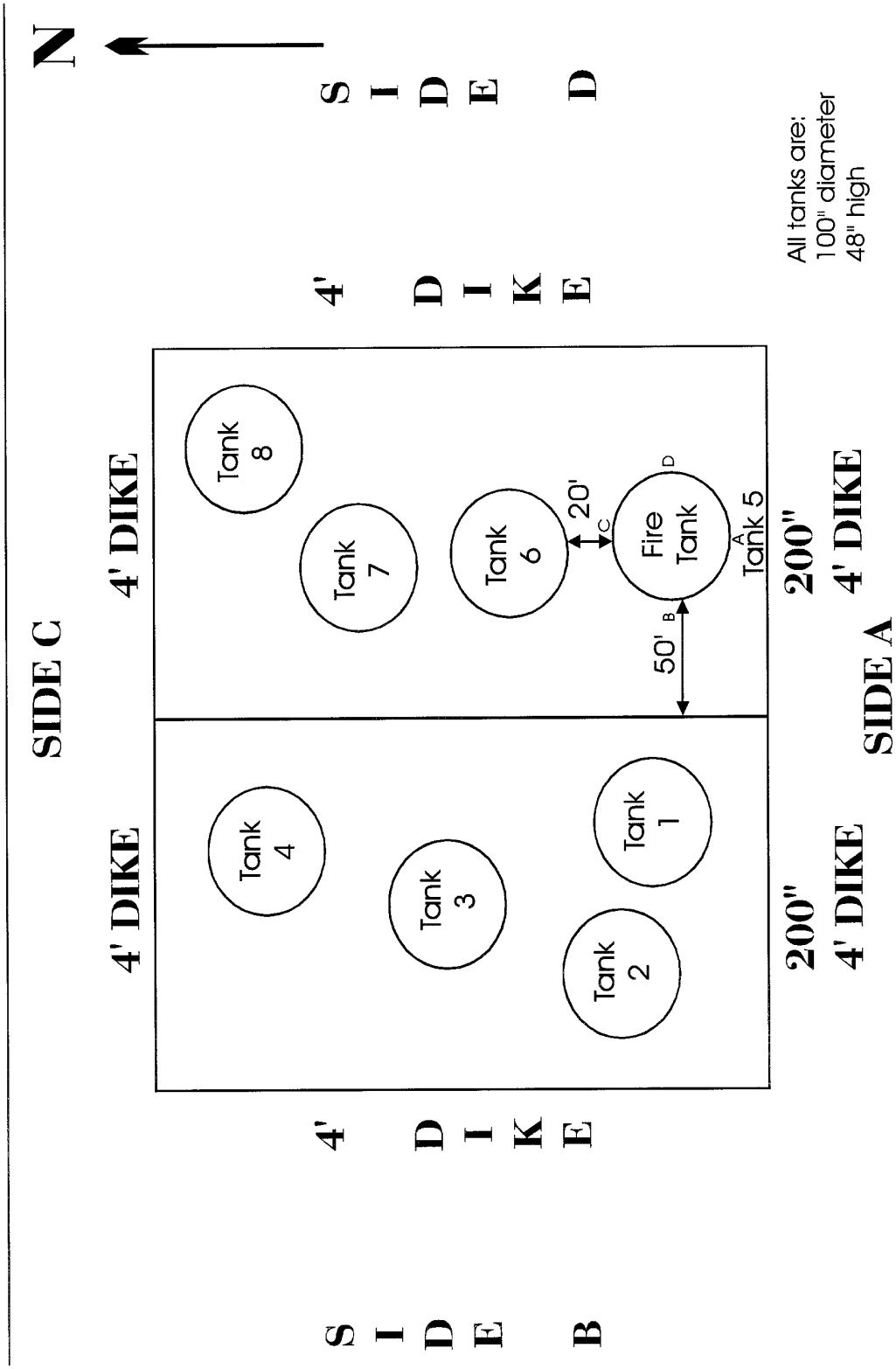
**Fire Behavior Prediction:*
Flammable liquids characteristics

Predicted Strategies:
Exposures--confinement—extinguishment

Problems Anticipated:
Access to tanks: integrity of tank structure
Water/Foam application

☐ **Standpipe:**	☒ **Sprinklers:** Foam chambers on tanks	☐ **Fire Detection:**

TANK FARM


N
SIDE C
4' DIKE
4' DIKE
Tank 8
Tank 7
Tank 6
20'
C
Fire Tank
D
A
Tank 5
50'
B
Tank 4
Tank 3
Tank 2
Tank 1
4' DIKE
4' DIKE
200"
200"
4' DIKE
4' DIKE
SIDE A
SIDE B
All tanks are:
100" diameter
48" high

Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card **Response time: 20 min.**

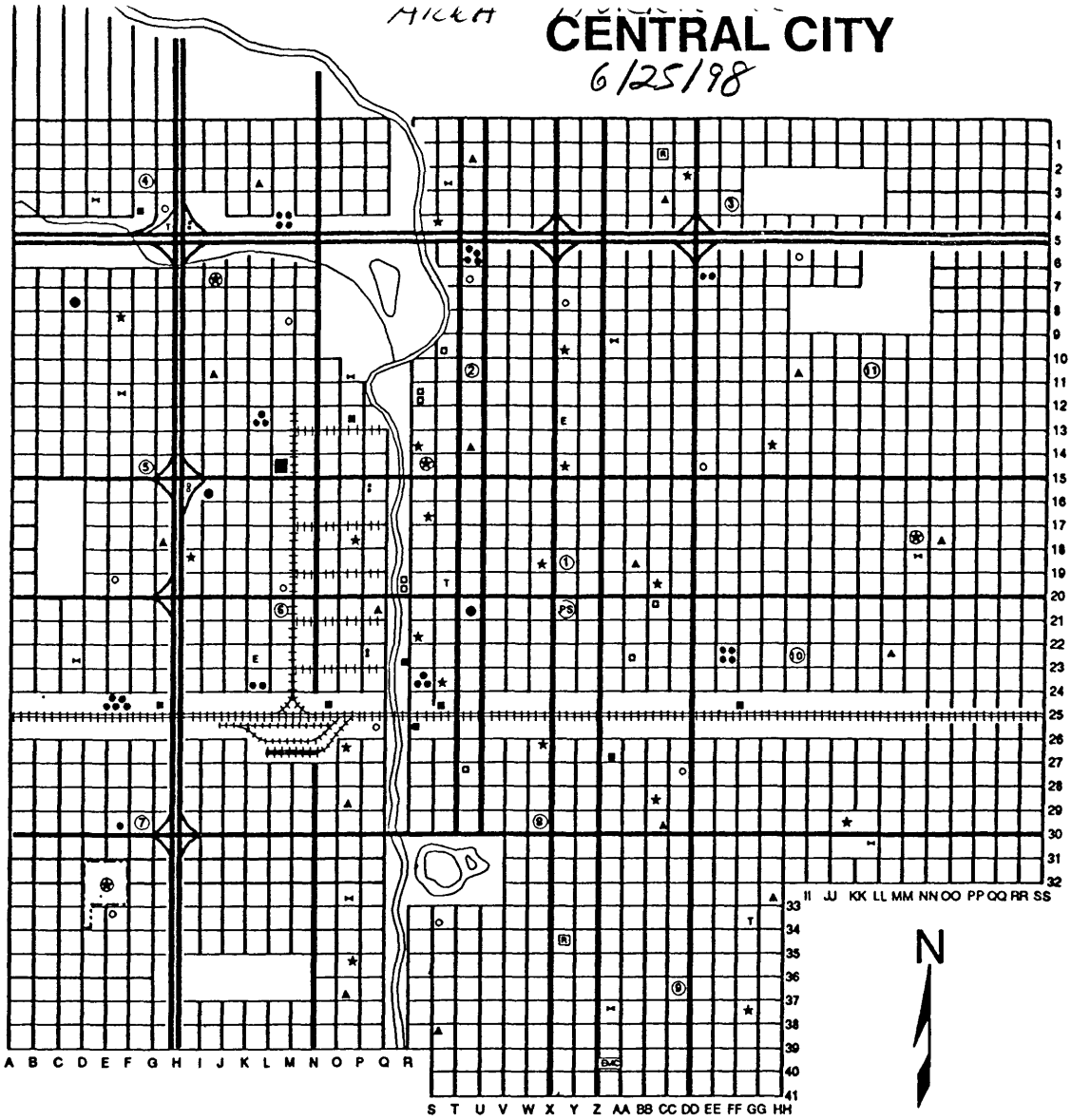
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

Instructor Notes:

These messages are examples of possible messages for the incident. You may need to adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 1645 hours**

To: Dispatch/Battalion Chief 1

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Message:

A fire occurs in a bulk storage facility that serves Central City and the surrounding area with a variety of petroleum products. It contains combustible and flammable liquids. The Beeline Oil Company is located at U and 6th Streets.

It is Friday, July 6; the temperature is 94 ºF, and winds are gusting out of the west at 15 mph. A severe thunderstorm warning will in effect until 1900 hours. At approximately 1635 hours, a thunderstorm moved through the area. Lightning struck the number 5 tank and tore a hole 35’ x 6’ on Side B in the roof of the tank and ignited the product. It also opened a 15’ x 4’-hole on Side D of the roof. The remainder of the roof has been disfigured but remains intact. Flames are visible on Sides B and D of the tank.

Battalion 1 arrives on scene before any other first-alarm companies.

Simulation Time: 00:05

SIMULATION MESSAGE

Message #2 **Incident Time: 1655 hours**

To: Operations

Message:

Central City Incident Management Team has arrived on scene and will be briefed by Battalion 1.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #3 **Incident Time: 1658 hours**

To: Liaison/Operations/Planning

Message:

Plant personnel report the fire tank contains 1,200,000 gallons, which is equal to 46 percent capacity, of high-octane gasoline. Fire tank is 100’ in diameter and 48’ high.

Simulation Time: 00:18

SIMULATION MESSAGE

Message #4 **Incident Time: 1700 hours**

To: Liaison/Operations/Planning

Message:

All tanks in the fire dike area contain high-octane gasoline.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #5 **Incident Time: 1700 hours**

To: Operations/Planning

Message:

Second alarm arrives in staging.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #6 **Incident Time: 1702 hours**

To: Operations/Planning/Liaison

Message:

Internal foam chambers appear to be damaged on Side B and D of the fire tank. Plant foam system is not functioning. Plant has lost all power due to the electrical storm. Only one foam chamber may be effective. The plant's foam pumper is on the scene.

Simulation Time: 00:22

SIMULATION MESSAGE

Message #7 **Incident Time: 1705 hours**

To: Liaison/Operations/Planning

Message:

Plant superintendent is unsure of the position of the internal roof; it could be in a cantilevered position.

Simulation Time: 00:25

SIMULATION MESSAGE

Message #8 **Incident Time: 1707 hours**

To: Liaison/Planning/Logistics

Message:

Plant official reports tank does not have subsurface injection capability. Overhead delivery of foam is the best attack method.

Simulation Time: 00:27

SIMULAITON MESSAGE

Message #9 **Incident Time: 1708 hours**

To: Information Officer/Incident Commander

Message:

Media are on the scene. They are inquiring about the possibility of an explosion and evacuation of the area.

Prepare a written press release.

Simulation Time: 00:28

SIMULATION MESSAGE

Message #10 **Incident Time: 1711 hours**

To: Liaison/Operations/Planning

Message:

Police are inquiring about evacuating residential structures in the smoke plume area. Many older citizens live in the area.

Simulation Time: 00:31

SIMULATION MESSAGE

Message #11 **Incident Time: 1715 hours**

To: Operations/Safety/Liaison

Message:

Plant personnel report a small ground spill of gasoline around the tank on Side B.

Simulation Time: 00:35

SIMULATION MESSAGE

Message #12 **Incident Time: 1718 hours**

To: Liaison/Operations/Planning

Message:

Dispatch Center reports that a severe thunderstorm is heading into Central City. Winds will continue to increase in velocity; severe lightning can be expected.

Simulation Time: 00:38

SIMULATION MESSAGE

Message #13 **Incident Time: 1726 hours**

Alert all incident command team members.

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Increased volume of fire from tank is being blown horizontally.

Simulation Time: 00:46

SIMULATION MESSAGE

Message #14 **Incident Time: 1728 hours**

To: Operations/Safety/Planning

Message:

Division B reports partial cone roof collapse on tank on Side B. Appears that some of the roof struts were weakened by the initial explosion.

Simulation Time: 00:48

SIMULATION MESSAGE

Message #15 **Incident Time: 1733 hours**

To: Operations/Liaison/Safety

Message:

Dike area is beginning to accumulate water. Drains are not handling runoff sufficiently.

Simulation Time: 00:53

SIMULATION MESSAGE

Message #16 **Incident Time: 1734 hours**

To: Operations/Logistics/Liaison

Message:

Yard water pressure has dropped significantly and is continuing to decrease. Need supplemental lines from outside the facility.

Simulation Time: 00:54

SIMULATION MESSAGE

Message #17 **Incident Time: 1738 hours**

To: Liaison/Safety/Operations

Message:

Plant personnel report flammability readings in the sewers on Side C. May be residual, but not sure.

Simulation Time: 00:58

SIMULATION MESSAGE

Message #18 **Incident Time: 1746 hours**

To: Liaison/Operations/Safety

Message:

Plant personnel report minor erosion of the dike on Side C.

Simulation Time: 01:06

SIMULATION MESSAGE

Message #19 **Incident Time: 1746 hours**

To: Safety/Operations/Logistics

Message:

Two firefighters have slipped on Side C; one possibly has a broken leg. Need EMS help.

Simulation Time: 01:06

SIMULATION MESSAGE

Message #20 **Incident Time: 1756 hours**

Alert all incident command team members.

Slide 10-33

Tanks with reduced fire.

Simulation Time: 01:16

SIMULATION MESSAGE

Message #21 **Incident Time: 1804 hours**

Message:

Simulation complete. Take 10 minutes to recap activities.

Simulation Time: 01:20

SIMULATION MESSAGE

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Matrix: Bulk Storage Facility/Tank Farm		
Function	**Message # 1**	**Message # 4**
Command	Perform size-up, establish strategy, develop ICS structure.	Monitor progress and evaluate strategy. Consider adjusting strategy.
Safety	Enforce safe corridors of operation. Review special considerations (type of structure/contents/equipment/use).	Enforce safe corridors of operation. Address FF accountability. Judge apparatus placement safety. Weigh equipment use and safety. Confront tactical safety. Review special considerations (type of structure/ contents/equipment/use).
Liaison	Identify personal contacts. Identify concerned agencies.	Maintain communication with agencies.
Information		Gather incident information.
Operations	Deploy companies. Define tactics. Determine need for additional resources. Establish fire/EMS ICS operational structure.	Deploy companies. Define tactics. Determine need for additional resources. Evaluate progress of operations.
Planning	Predict incident progress. Predict resource needs.	Develop action plan. Maintain situation and resource status records. Work with technical specialists.
Logistics	Establish support for incident supplies: batteries, radios, tools, lighting, etc.	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims).
Administration/ Finance		

Simulation Matrix: Bulk Storage Facility/Tank Farm		
Function	**Message # 11**	**Message # 12**
Command	Perform size-up, establish strategy, develop ICS structure. Monitor progress and evaluate strategy. Consider adjusting strategy.	Monitor progress and evaluate strategy. Support operations' requests for resources.
Safety	Consider structural integrity. Enforce safe corridors of operation. Address FF accountability.	Enforce safe corridors of operation. Address F/F accountability. Confront tactical safety. Review special considerations (type of structure/contents/equipment/use).
Liaison	Maintain communication with agencies. Brief IC on agency status.	Maintain communication with agencies. Identify shelter and/or rehabilitation locations.
Information	Prepare information release. Maintain media contacts. Establish media staging area.	Maintain media contacts.
Operations	Deploy companies. Define tactics. Maintain active communication with companies. Adjust tactics. Evaluate progress of operations.	Maintain active communication with companies.
Planning	Modify action plan to meet changing situation. Predict incident progress. Maintain situation and resource status records.	Maintain situation and resource status records.
Logistics	Establish support for incident supplies: batteries, radios, tools, lighting, etc.	Establish facilities and support for rest and rehab areas. Establish support for incident supplies: batteries, radios, tools, lighting, etc.
Administration/ Finance		Maintain records of outside agency participation.

Simulation Matrix: Bulk Storage Facility/Tank Farm		
Function	**Message # 17**	**Message # 19**
Command	Monitor progress and evaluate strategy.	Monitor progress and evaluate strategy. Support operations' requests for resources.
Safety	Enforce safe corridors of operation. Review special considerations (type of structure/contents/equipment/use).	Enforce safe corridors of operation. Address FF accountability. Confront tactical safety. Review special considerations (type of structure/ contents/equipment/use).
Liaison	Identify personal contacts. Identify concerned agencies. Maintain communication with agencies.	Maintain communication with agencies.
Information	Conduct press briefing.	Maintain media contacts.
Operations	Adjust tactics. Evaluate progress of operations.	Maintain active communication with companies. Evaluate progress of operations.
Planning	Modify action plan to meet changing situation. Work with technical specialists.	Predict incident progress. Predict resource needs. Plan for demobilization.
Logistics	Establish support for incident supplies: batteries, radios, tools, lighting, etc. Manage command post area/vehicle.	Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish facilities and support for relocation and shelters. Establish facilities and support for rest and rehab areas.
Administration/ Finance	Track all costs.	Document injuries and deaths.

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	

Major Hazards and Risks:

Narrative:

Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Press Questions

What are the contents of the tank that is on fire?

_____

_____

Will the fire spread to other tanks in the area?

_____

_____

Can a fire like this cause an explosion?

_____

_____

We have a report that the smoke coming from the fire is causing breathing problems to residents in the surrounding community. Is this true?

_____

_____

What should the residents do to avoid breathing the smoke?

_____

_____

Should the residents evacuate their homes? If so, where should they evacuate?

_____

_____

Are the firefighters fighting the fire in any danger?

_____

_____

We have reports that some firefighters and plant personnel have been injured? Is this true?

_____

_____

How many firefighting resources are here?

_____

_____

How long will it be before the fire is controlled?

_____

_____

Activity 10.1:
Bulk Storage Facility/Tank Farm Simulation Exercise
Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a bulk storage facility/tank farm incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (a second Aide designated for groups with more than 10)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

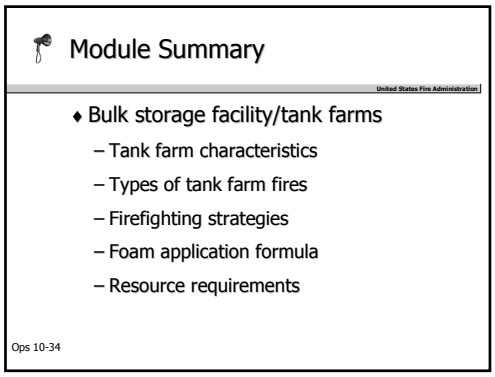
Activity 10.1:
Bulk Storage Facility/Tank Farm Simulation Exercise
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Slide 10-34: Module Summary



IX. Module Summary (10 minutes)

Instructor Notes:

Briefly summarize the module and ask students if they have any further questions or comments on bulk storage facility/tank farm incidents.

In this module, we discussed:

- Tank farm characteristics,
- Types of tank farm fires,
- Firefighting strategies,
- Foam application formula, and
- Resource requirements.

MODULE 10

APPENDIX

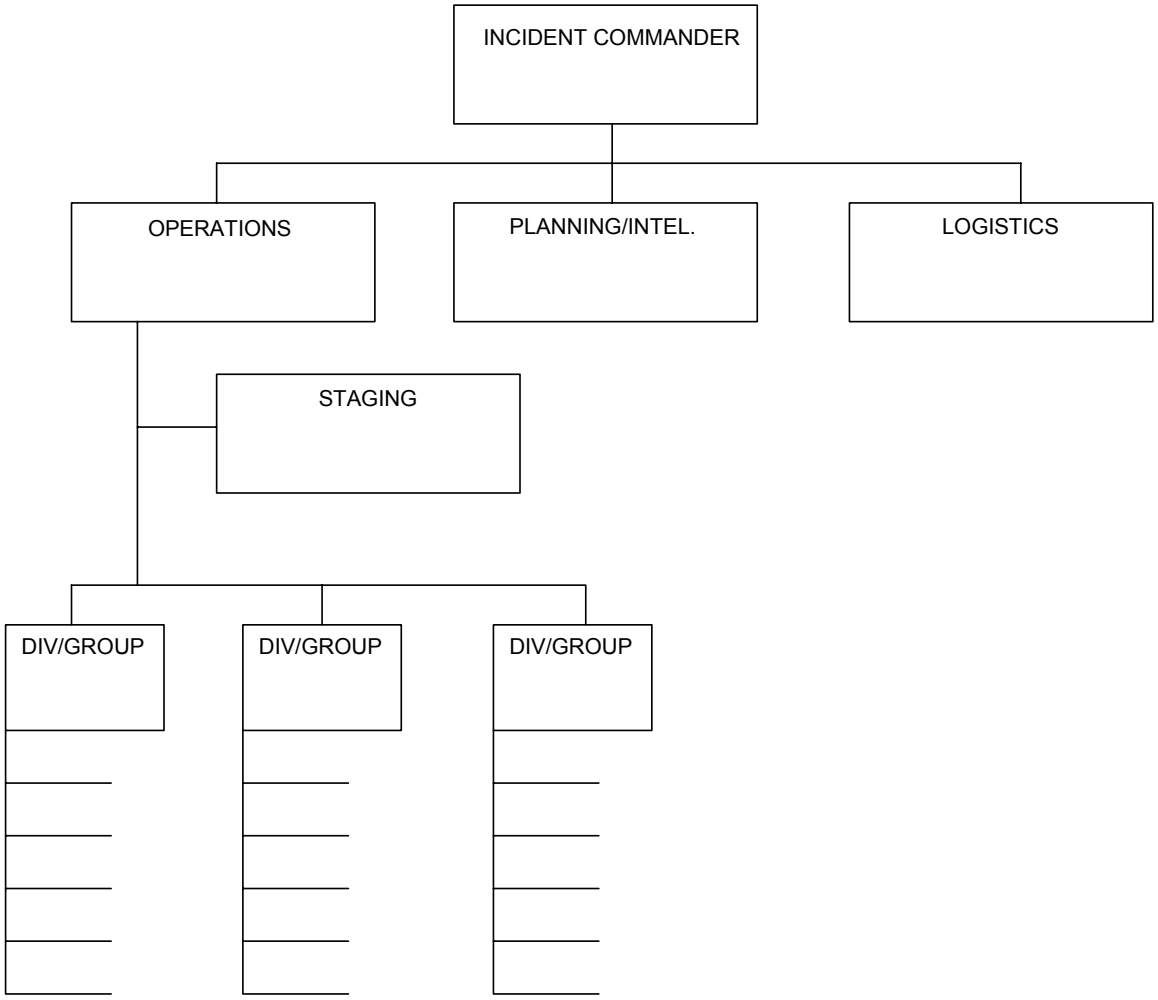
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

MODULE 11

MODULE 11

STRUCTURAL COLLAPSE SIMULATION EXERCISE

MODULE 11:

STRUCTURAL COLLAPSE SIMULATION EXERCISE

Terminal Objective

Upon completing the module, students will be able to effectively manage an incident involving a structural collapse.

Enabling Objectives

Students will:

- Identify various resource levels, types, and capabilities used for structural collapse incidents;
- Determine the types and levels of structural collapse risks;
- Determine levels of capability for a structural collapse incident;
- Establish incident objectives;
- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage a structural collapse incident.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer
- LCD projector
- One portable screen or classroom equipped with screen
- Chalkboard/wipeboard
- Easel pads with markers
- Command Worksheets (may use local fire department worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than “normal” first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who makes command level decisions based on strategic

objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities. Some of these hazards are significant and are known as target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

Expanded Written Incident Action Plan

This course is designed for battalion chief level officers operating at target hazard incidents that usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

A risk/hazard analysis is needed to determine resource requirements for potential structural collapse incidents. Various levels of capability and availability of response resources from various agencies should be discussed, as well as the special coordination needs of these kinds of incidents.

Initial scene assessment and building triage provide for the development of the response plan and set the tone for operations at the incident. Through lecture and an activity, this module provides the student with the information necessary to establish scene control and understand scene safety.

A major structural collapse incident response grows from the initial response involving establishing command, the size-up, developing an action plan, and deploying resources to an expanded response requiring reinforced resources, a larger incident organization, and additional support requirements. An extended incident involving 24-hour operations requires a detailed Incident Action Plan (IAP), an extended organization, and effective coordination links within the ICS and the local Emergency Operations Center (EOC). The response phases are followed by demobilization and a return to a state of readiness.

This module should give the students knowledge needed to assume command of a structural collapse incident, identify the critical factors involved, and

perform an effective scene assessment. Students should be able to apply the various components of the course, that is, develop an organization, determine resources required, manage the scene, and understand rescue functions. This module provides students with the opportunity to use these skills in a simulation exercise.

Methodology

This module uses lecture, discussion, and a simulation exercise.

Outline

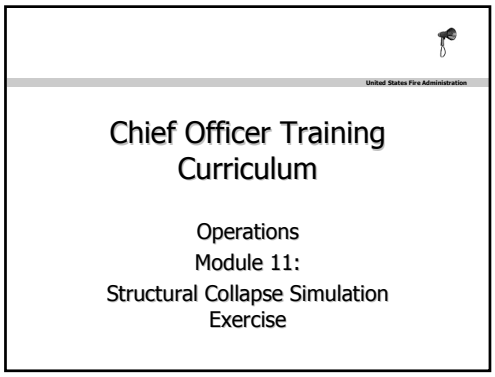
I. Objectives and Overview ..... 5 minutes
II. Overview of Structural Collapse ..... 25 minutes
III. Response Versus Recovery ..... 5 minutes
IV. Capability ..... 15 minutes
V. Coordinating with Other Agencies ..... 5 minutes
VI. Initial Scene Assessment ..... 30 minutes
VII. Life Safety and Personnel Considerations ..... 10 minutes
VIII. Establishing Scene Control ..... 20 minutes
IX. Extended Response ..... 25 minutes
X. Activity 11.1: Structural Collapse: Tree Down into an Apartment Building ..... 90 minutes
XI. Module Summary ..... 10 minutes

240 minutes

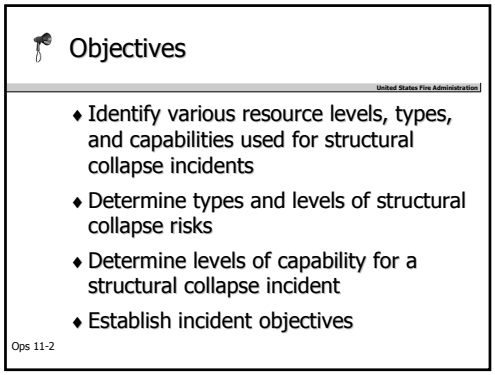
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

Slide 11-1: Module 11, Structural Collapse Simulation Exercise



Slide 11-2: Objectives



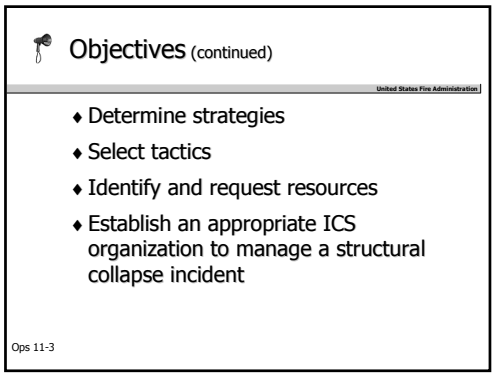
I. Objectives and Overview (5 minutes)

A. Objectives

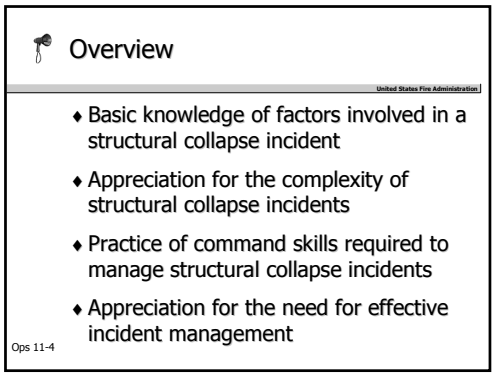
Students will be asked to:

- Identify various resource levels, types, and capabilities used for structural collapse incidents;
- Determine the types and levels of structural collapse risks;
- Determine levels of capability for a structural collapse incident;
- Establish incident objectives;

Slide 11-3: Objectives (continued)



Slide 11-4: Overview



- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage a structural collapse incident.

B. Overview

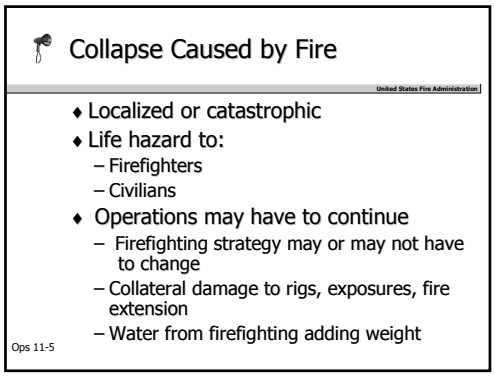
This module will provide:

- A basic knowledge of factors involved in a structural collapse incident;
- An appreciation for the complexity of structural collapse incidents;
- A practice of command skills required to manage structural collapse incidents; and
- An appreciation for effective incident management.

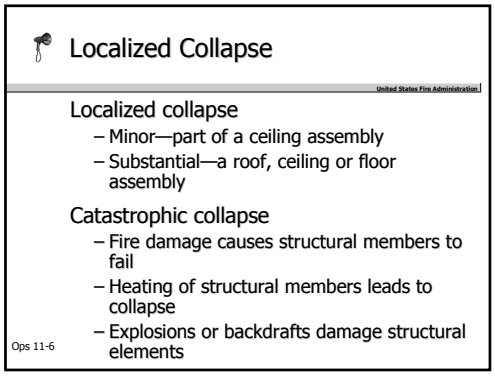
When does collapse occur? It occurs:

- While we are on scene,
- Before our arrival, or
- Before our dispatch.

Slide 11-5: Collapse Caused by Fire



Slide 11-6: Localized Collapse



II. Overview of Structural Collapse (25 minutes)

A. Collapse caused by fire

- Collapse could be localized or catastrophic:
  - Life hazard to:
    - Firefighters and
    - Civilians;
  - Operations may have to continue:
    - Firefighting strategy may or may not have to change;
    - Collateral damage to rigs, exposures, fire extension; and
    - Water from firefighting operations adding weight.
- Localized collapse:
  - Minor, such as part of a ceiling assembly; or
  - Substantial, such as a roof, ceiling, or floor assembly.
- Catastrophic collapse:
  - Fire damage causes structural members to fail, taking down:

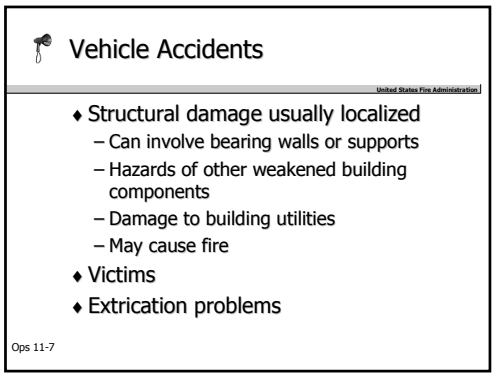
- Roof sections,
- Walls,
- Floors, or
- Entire building.

* Heating of structural members leads to collapse of:
  - Roofs,
  - Walls,
  - Floors, or
  - Entire building.
* Explosions or backdrafts may damage structural elements.

B. Collapse caused by mechanical damage

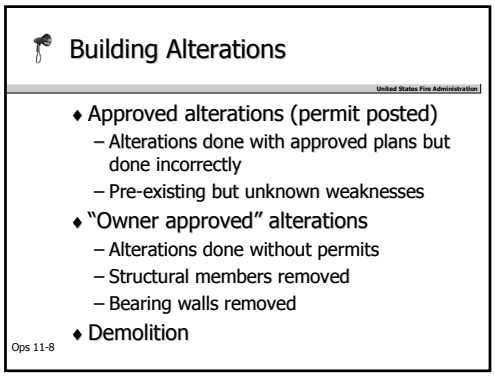
- Vehicles into structures:
  * Driver has impairment,
  * Vehicle malfunction, or
  * Vehicle involved in an accident.

Slide 11-7: Vehicle Accidents



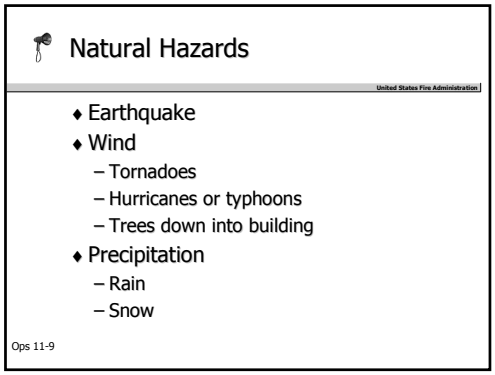
* Structural damage is usually localized and can involve:
  - Bearing walls or supports,
  - Hazards of other weakened building components,
  - Damage to utilities, or
  - May cause fire.
* Victims:
  - Occupants of the vehicle and
  - Occupants of the building.
* Extrication problems:
  - From the vehicle,
  - From the building, and
  - Concern for weakened structural members (need for shoring).

Slide 11-8: Building Alterations



- Building alterations:
  - Approved alterations (permit posted):
    - Alterations done with a set of approved plans but done incorrectly or
    - Pre-existing or unknown weaknesses.
  - "Owner approved" alterations:
    - Alterations done to the building without permits,
    - Structural members or bearing walls removed.
  - Construction or demolition.

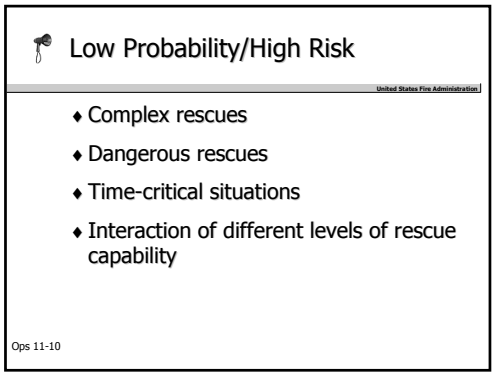
Slide 11-9: Natural Hazards



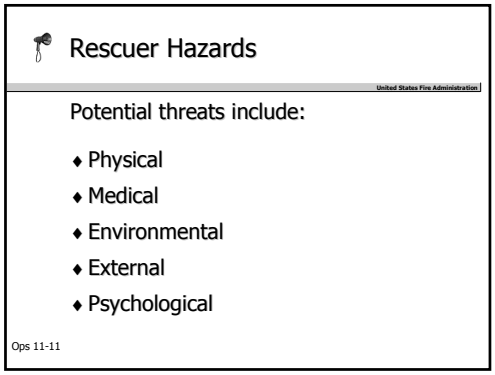
C. Collapse caused by natural hazards

- Earthquake;
- Wind:
  - Tornadoes,
  - Hurricanes or typhoons, or
  - Trees down into buildings; and
- Precipitation:

Slide 11-10: Low Probability/High Risk



Slide 11-11: Rescuer Hazards



* Rain and
* Snow.

D. Low probability/high consequence incidents

- Rescue of trapped victims may be both complex and dangerous.
- The response may involve various levels of rescue capability in a time-critical situation to locate and remove trapped or injured victims within the collapsed structure.
- Structural collapses may create many hazardous conditions, potentially causing injury, illness, psychological problems, or even death for the rescuer.
  * Physical:
    - Two common threats are atmospheric contamination and changes in temperature that affect body functions.
    - Adequate nutrition and good physical conditioning are important.
  * Medical:
    - Medical threats may include pre-existing

conditions such as heart disease or diabetes.

– Short-term medical problems, such as headaches and stomach disorders, can be debilitating.

* Environmental:

  Extreme working environments caused by cold, wet, or hot weather affect the human body and cause injuries such as hypothermia and heat exhaustion.

* External:

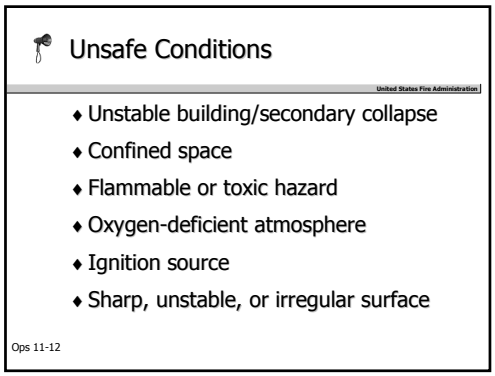
  These threats include those caused by terrain, unstable surfaces, electrical shock, falling objects, and risk of falling.

* Psychological:

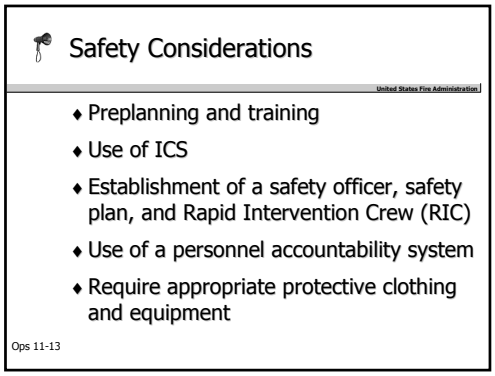
  – Psychological impacts of rescue operations may include stress or anxiety from a fear of heights or of enclosed places.

  – Critical Incident Stress Management (CISM) may be needed for both long- and short-term stress.

Slide 11-12: Unsafe Conditions



Slide 11-13: Safety Considerations



E. Unsafe conditions for rescuers and victims

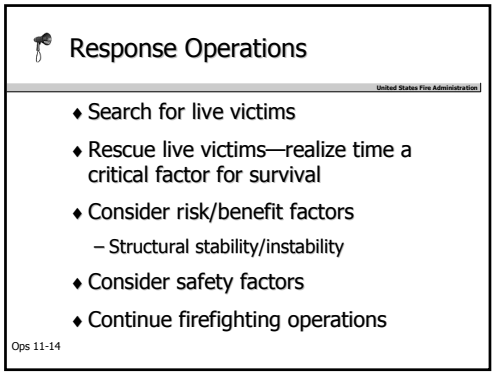
- Unstable rescue areas creating the possibility of secondary collapse include:
  - Confined spaces;
  - Flammable or toxic hazards;
  - Oxygen-deficient atmospheres;
  - Ignition sources; and
  - Sharp, irregular, or unstable surfaces.

F. Safety considerations

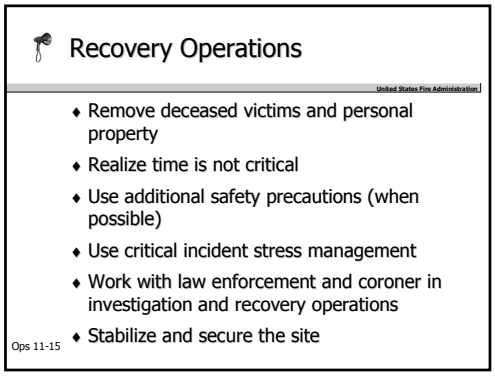
Safety considerations are a high priority in the response and management of a structural collapse incident.

- Safety starts with preplanning and training.
- Use the Incident Command System (ICS).
- Provide an Incident Safety Officer (ISO), a safety plan, and a Rapid Intervention Crew (RIC) or company.
- Use a personnel accountability system.

Slide 11-14: Response Operations



Slide 11-15: Recovery Operations



- Require appropriate protective clothing and equipment.

III. Response Versus Recovery Operations (5 minutes)

A. Response

- Response operations involve the search for, and rescue of, live victims.
- Time is a critical factor in the survival of trapped or injured victims.
- Risk/benefit and safety are major considerations in the response phase.

B. Recovery

- Recovery operations involve the search for (and removal of) deceased victims and personal property.
- Time is not a critical factor, so taking additional safety precautions, such as more shoring or using heavy equipment for debris removal can reduce the risk level to the rescuer.
- A CISM program should be in place.

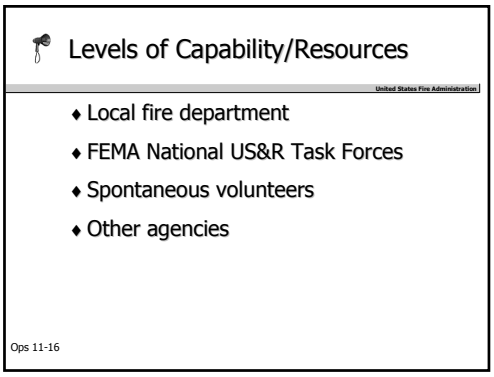
- Law enforcement and the coroner are involved in the recovery and investigation.

- Stabilize and secure the incident site.

IV. Capability (15 minutes)

It is important that each department identify and understand its collapsed structure response capabilities. It is also important to understand what kind of problems you are likely to encounter in your community.

Slide 11-16: Levels of Capability/ Resources



A. Levels of capability

- Levels of capability:
  - Local fire department;
  - Local, state, and regional resources;
  - Federal Emergency Management Agency (FEMA) National Urban Search and Rescue (US&R) Task Forces;
  - Spontaneous volunteers; and
  - Many agencies that may respond to a structural collapse.

- The fire service has a key role in collapsed structure response and should have the capability to

respond effectively to the various incidents encountered.

- The levels of operational capability are based on the degree of hazard and jurisdictional risk assessment, the training level of personnel, and the availability of resources.

- Most fire departments today would be able to perform at the basic and light operational levels and many at the medium level of capability, but departments need to determine their level of capability.

B. Resources

Instructor Notes:

Ask the question:

What government resources could you call upon in your own jurisdiction if you have to deal with a structural collapse?

Suggested responses:

- Fire department engine or truck company,
- Heavy rescue company,
- Urban Search & Rescue companies (Types 1 to 4),
- Confined space team,

- High-angle rescue team,
- Technical rescue team,
- Heavy equipment,
- Technical search team,
- FEMA US&R Task Force,
- Haz mat team,
- EMS,
- Structural engineers,
- Law enforcement,
- Military support,
- Food, and
- Transportation department (equipment and personnel).

Before showing the slides, ask the question:

What private resources could you call upon in your own jurisdiction if you have to deal with a structural collapse?

Record the responses on an easel pad.

Slide 11-17: CERTs

Suggested responses:

- Community Emergency Response Teams (CERTs);

Slide 11-18: Search Dogs and Handlers

- Search dogs with handlers (public or private);

Slide 11-18: Contractors

- Contractors with heavy equipment and specialists;

Slide 11-20: Structural Engineers

- Structural engineers;

Slide 11-21: Industry Teams

- Industry teams (for example, confined space, high-angle rope rescue, or technical search);
- EMS;
- Equipment rental and equipment supply companies;
- Trained community relief volunteer teams;
- Untrained volunteers; and
- Laborers.

C. US&R resource types

Before showing the next slide, ask the question:

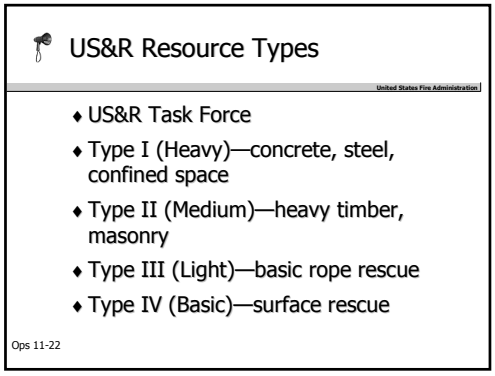
What are the US&R resource types?

Suggested response:

US&R resources have been typed according to the capability of the

resource. This typing is based on the equipment carried on the apparatus and the training of the personnel.

Slide 11-22: US&R Resource Types



- US&R resources are used by many fire departments for EMS and haz mat response. This same system is used for collapsed structure response.
  - US&R Task Force;
  - Type I (Heavy)—concrete, steel, confined space;
  - Type II (Medium)—heavy timber, masonry;
  - Type III (Light)—basic rope rescue; and
  - Type IV (Basic)—surface rescue.

Slide 11-23: US&R Task Force

US&R Task Force

- US&R task force with heavy rescue capability, including search, medical, technical, and support components (multi-disciplined Technician Level).

Slide 11-24: Type 1—Heavy

Type 1: Heavy Rescue Company—Heavy Rescue Capability

- Type 1: heavy rescue company with heavy rescue capability (Technician Level).

Slide 11-25: Type 2—Medium

Type 2: Truck Company—Medium Rescue Capability

- Type 2: truck or rescue company with medium rescue capability (Operational Level).

Slide 11-26: Type 3—Light

Type 3: Engine Company—Light Rescue Capability

- Type 3: engine or truck company with light rescue capability (Awareness Level).

V. Coordinating with Other Agencies (5 minutes)

- Structural collapse response may involve many agencies and organizations. This response will require a unified command post operation.

- A system to coordinate the response and incident operations of these resources is needed for effective incident management.

- Levels of coordination may occur at:

  * The incident with the IC and agency representatives, or at an incident coordination center;

  * The department dispatch center or department operating center;

  * The local Emergency Operations Center (EOC);

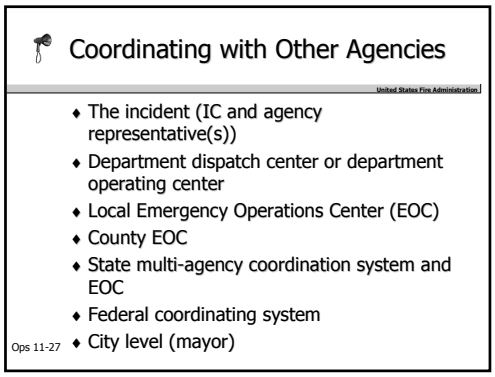
  * The county EOC;

  * The state multi-agency coordination system and state EOC;

  * The Federal coordinating system; or

  * City level (mayor or city

Slide 11-27: Coordinating with Other Agencies



manager) or county level (county executive).

VI. Initial Scene Assessment (30 minutes)

A. Size-up

Size-up involves obtaining information about the incident to develop a plan.

Instructor Notes:

Ask:

What information is needed to develop an IAP?

Suggested responses:

- The cause of the collapse;
- Hazards involved (for example, additional collapse, fire, haz mat, utilities, flooding, dust, toxic or flammable atmosphere);
- Incident conditions (for example, structural stability, time, weather, and access); and
- Victims—how many exist, as well as their locations, number in the locations, and degree of rescue difficulty; and if there are internal or external exposures.

Refer students to Appendix A, *Structural Collapse Scene Assessment Checklist*. This form is especially useful during initial size-up and development of a response plan.

Instructor Notes:

Show students a series of collapsed structure slides and ask the class for brief first impressions on initial scene assessment as the first-arriving IC. During your discussion, emphasize the type of building, type of collapse, hazards, potential victim locations, and viability.

Slide 11-28: Wood Frame Apartment House Collapse

- Wood frame apartment house collapse—soft first story, Loma Prieta earthquake, San Francisco;

Slide 11-29: Wal-Mart Tornado Damage

- Wal-Mart department store, tornado damage, Virginia, 1996;

Slide 11-30: Unreinforced Masonry Wall and Roof Collapse

- Unreinforced masonry wall and roof collapse, restaurant, Loma Prieta earthquake, Santa Cruz.

Slide 11-31: Fire-Caused Unreinforced Masonry Collapse

- Fire-caused unreinforced masonry collapse, Los Angeles; and

Slide 11-32: Fire-Caused Collapse, Noncombustible Construction

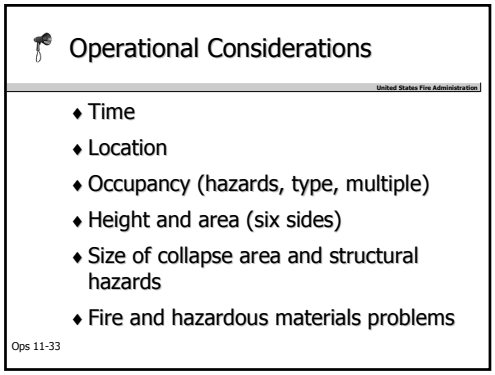
- Fire-caused collapse of noncombustible construction, school, Fairfax County, Virginia.

B. Operational considerations

Instructor Notes:

Refer students to Appendix C, *Structural Collapse Operational Checklist*, which is a good administrative tool to use during size-up.

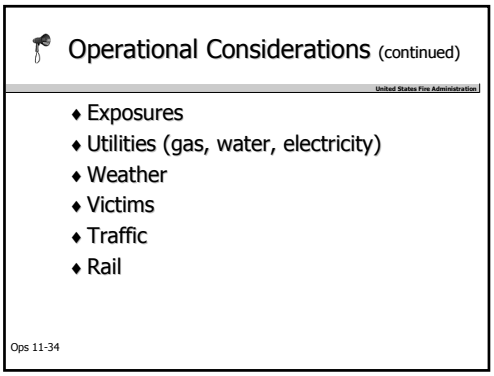
Slide 11-33: Operational Considerations



The IC needs to develop an IAP that includes the appropriate priorities, objectives, command structure, and resource requirements. In developing the IAP, the IC should consider the following factors:

- Time—The time of day provides information on the occupancy load and location of people in the structure.
- Location—Access is important to an effective operation.
- Occupancy—Knowledge of the occupancy yields information on hazards, occupant use, and types and number of businesses.
- Height and area—Consider all six sides and the area involved.
- Size of collapse area and structural hazards—This assessment drives resource requirements and safe methods of rescue.

Slide 11-34: Operational Considerations (continued)



- Fire problems and hazardous materials—Fire and hazardous materials problems may impede a collapsed structure rescue operation.

- Exposures—Interior and exterior exposures should be considered to prevent additional damage or injury.

- Utilities—Control of gas, water, and electricity is a major safety factor to both rescuers and victims.

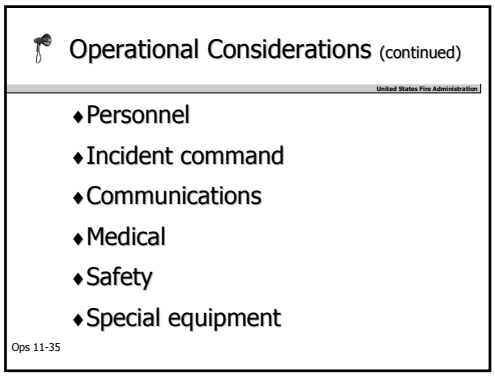
- Weather—Temperature variations affect the rescuers and victims. Wind and rain may create additional problems inside and outside the structure.

- Victims—Victim location is a priority in the initial rescue plan and may be determined by a variety of methods.

- Traffic—Speed of response and access to the collapse site are critical. Alternate routes and traffic control should be planned.

- Rail—Surface and underground rail systems may be part of the collapse problem or affect it because of vibration.

Slide 11-35: Operational Considerations (continued)



- Personnel—Rescue operations require a multidiscipline response from fire, EMS, police, public works, building department, transportation department, volunteers, and many others.

- Incident command—The complexities involved in rescue require an effective ICS to manage and coordinate operations, planning, and support.

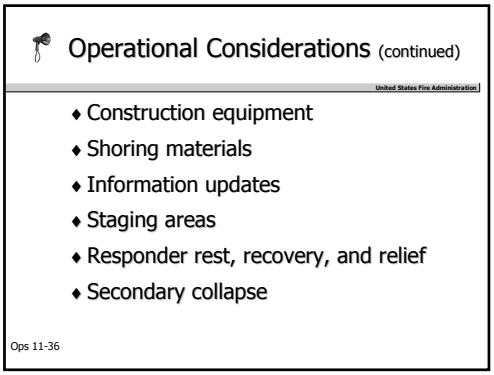
- Communications—Intra-agency and interagency communication capabilities are essential to effective and safe operations.

- Medical—Medical rescue operations need to provide for victims as well as have a component to handle the needs of the responder (for example, injury and rehab).

- Safety—Safety is a top priority in rescue planning and operations. It must be considered throughout the incident.

- Special equipment—Collapsed structure rescue operations may require the use of specialized search equipment and portable cutting, breaking, and breaching equipment.

Slide 11-36: Operational Considerations (continued)



- Construction equipment—Large, mechanized construction equipment may be needed to remove debris to expedite rescue operations.

- Shoring materials—A large amount of shoring materials may be required for safe access to victims and for structural stabilization. Pre-incident planning of supply sources is important.

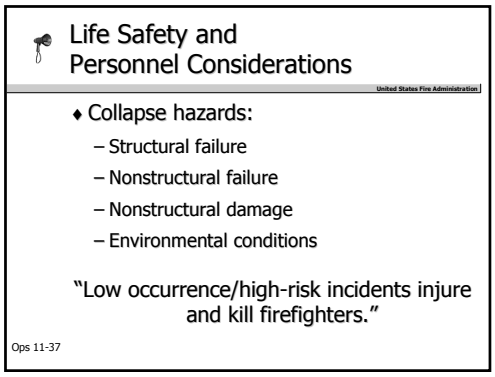
- Information updates—Continuous information updates are needed during every stage of the rescue operation.

- Staging areas—Staging areas should be established for incoming resources so that the response into the rescue site can be managed effectively.

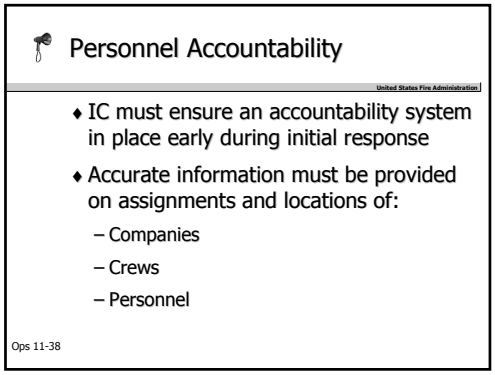
- Responder rest, recovery, and relief—Long-term rescue operations necessitate periodic rest periods for rehabilitation of rescue workers, including provisions for relief so that operations may continue without pause.

- Secondary collapse—The hazard of secondary collapse must be considered, whether from an earthquake aftershock or from failure of an already weakened support structure.

Slide 11-37: Life Safety and Personnel Considerations



Slide 11-38: Personnel Accountability



VII. Life Safety and Personnel Considerations (10 minutes)

Collapse hazards may be numerous, involving:

- Structural failure,
- Nonstructural failure,
- Nonstructural damage, and
- Environmental conditions;

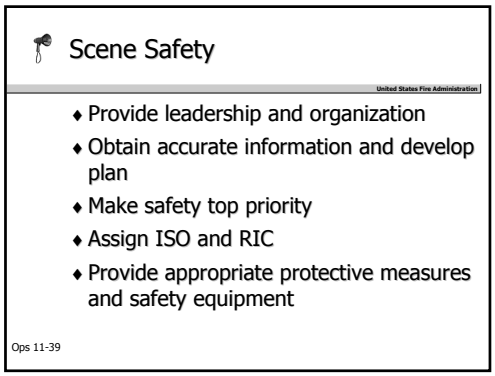
These hazards require specific mitigation and protection for responders and victims. Other people in the system give the IC advice—but **ultimately**, the IC makes the "go"/"no go" decision.

Low occurrence, high-risk incidents are where most responders are killed or injured.

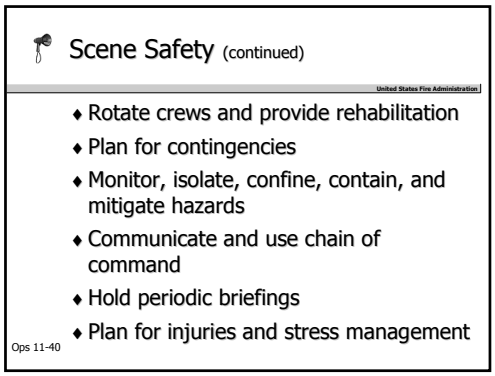
A. Personnel accountability

- The IC must ensure that a personnel accountability system is established during initial response.
- This system must include accurate information identifying company, crew, and personnel assignments and locations.

Slide 11-39: Scene Safety



Slide 11-40: Scene Safety (continued)

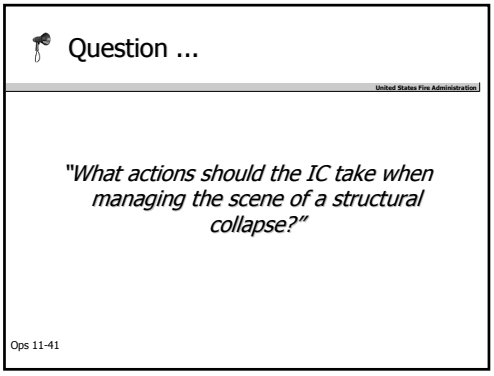


B. Scene safety

Effective incident command may reduce or eliminate hazards and dangerous working conditions:

- Provide leadership and organization;
- Obtain accurate information and develop a plan;
- Make safety a top priority;
- Assign an ISO and a RIC;
- Provide for appropriate protective measures and safety equipment;
- Rotate crews and provide rehabilitation;
- Plan for contingencies;
- Monitor, isolate, confine, contain, and mitigate hazards;
- Communicate and use the chain of command;
- Have periodic briefings; and
- Plan for injuries and stress management.

Slide 11-41: Question



VIII. Establishing Scene Control (20 minutes)

A. Coincides with the initial size-up and development of an IAP

Instructor Notes:

Ask:

What actions should the IC take when managing the scene of a structural collapse?

Suggested responses:

- Size-up;
- Develop objectives;
- Develop priorities;
- Assign/request resources;
- Provide logistical support;
- Develop an incident command organization;
- Isolate the area;
- Establish zones:

  -Collapse hazard zone (hot zone),

  -Rescue work zone,

  -Operational work area, and

  -Mark and identify areas;
- Evacuate bystanders and nonessential people;

- Control perimeters by:

  -Controlling and managing spontaneous responders,

  -Providing access/entry routes into worksite;

  -Providing for outer perimeter access control,

  -Developing a traffic plan, and

  -Requesting (and using) law enforcement for this function;

- Establish site security:

  -Needing authorization to enter site,

  -Media control, and

  -Use of law enforcement;

- Establish incident facilities:

  -Command Post (CP),

  -Staging,

  -Medical triage and treatment area,

  -Base,

  -Cribbing and shoring work station,

  -Evacuation area, and

  -Rehabilitation area.

- Investigate the incident:

  -Seek cause determination (criminal or

accidental),

-Preserve evidence,

-Document, and

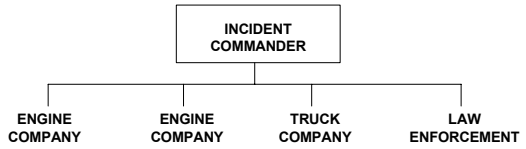
-Request assistance.

B. Initial response

Initial response involves resource deployment and organization.

- Deploy resources to accomplish priority objectives and
- Initiate scene management:
  - Isolate the area and
  - Establish zones.

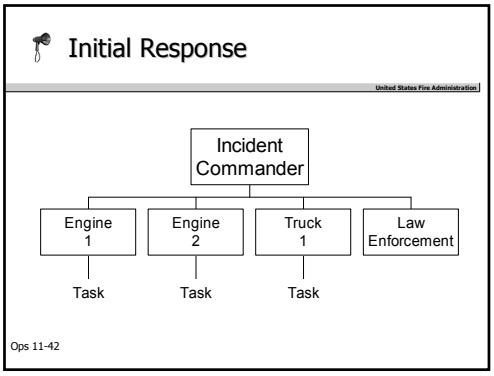
The following figure illustrates an initial response.



Instructor Notes:

Refer students to Appendix D, *ICS Form 201: First IAP Basic*, for an example of a multidivision IAP for a structural collapse incident.

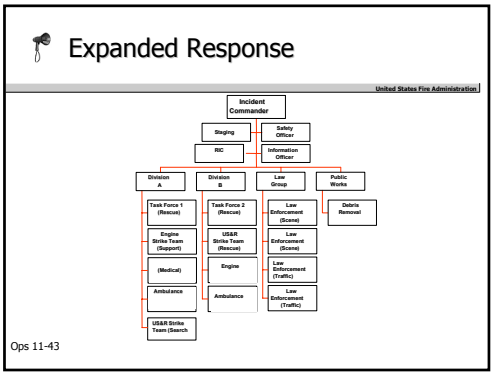
Slide 11-42: Initial Response



C. Expanding the organization

An expanded response is initiated when the IC determines that initial resources are insufficient.

Slide 11-43: Expanded Response



Instructor Notes:

Refer students to Figure 11-2, ICS Expanded Structural Collapse Response Organization, in their student manuals. The figure is provided on the following page in the instructor guide.

The figure illustrates an ICS for expanded response, how the system builds, and subsequent resource assignments.

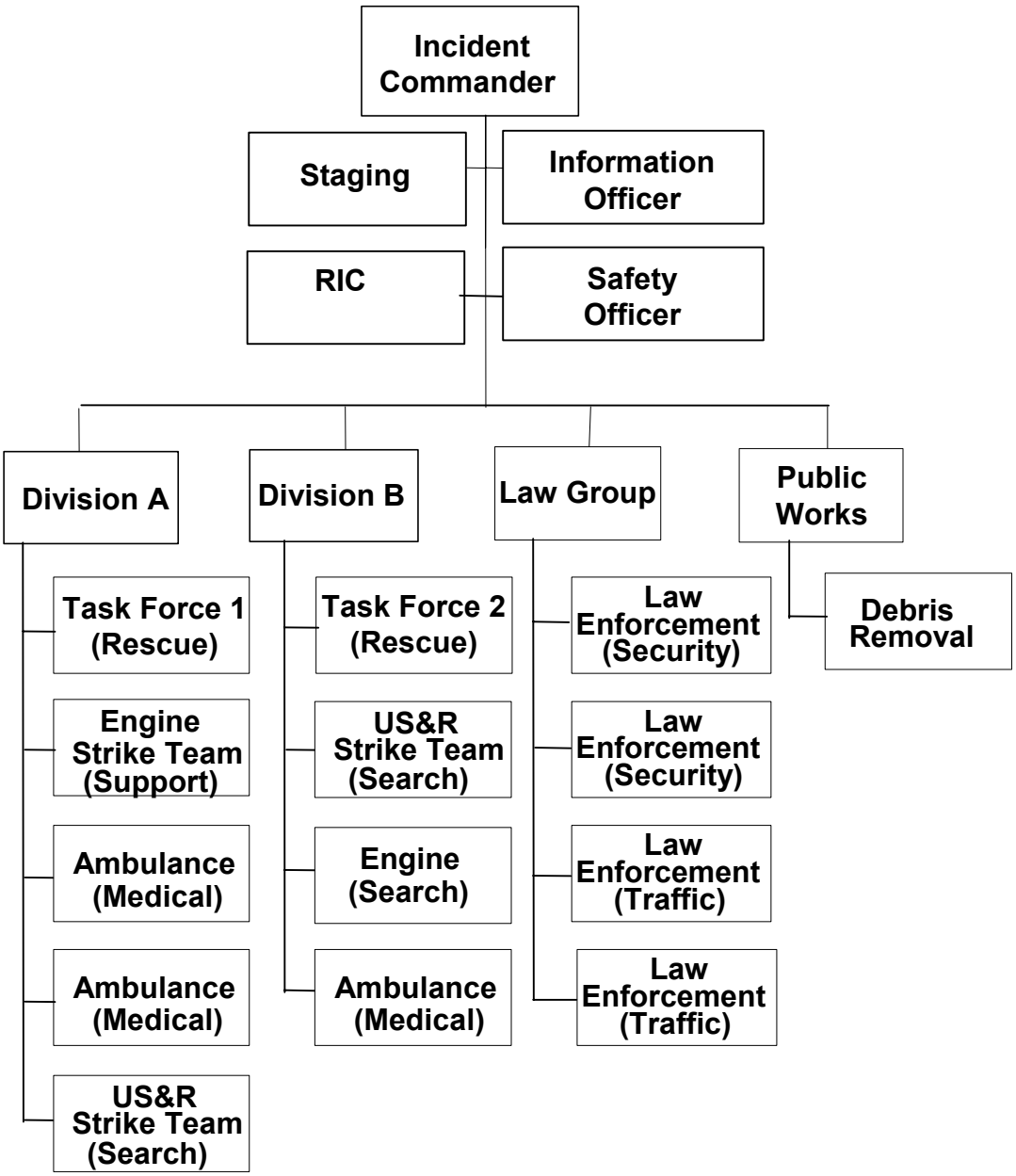
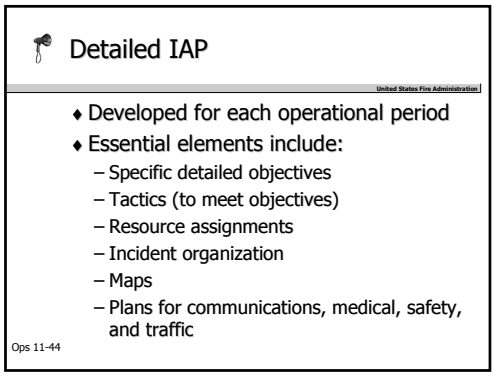


Figure 11-1: ICS Expanded Structural Collapse Response Organization

Slide 11-44: Detailed IAP



IX. Extended Response (24-Hour Operation) (25 minutes)

A. Detailed IAP

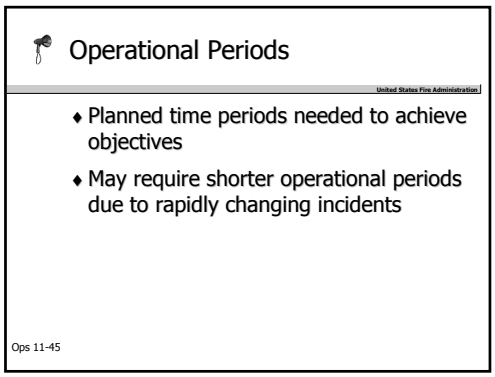
- A detailed IAP is necessary for incidents with an extended response involving operational periods and multi-agency or multijurisdiction involvement. It documents activities developed for a given time (operational periods), and when all attachments are included, it specifies:

  * Control objectives (ICS Form 201),
  * Tactics to meet those objectives (ICS Form 201),
  * Resource assignments (ICS Form 201),
  * Incident organization (ICS Form 201),
  * Required maps and information specific to the incident,
  * Communications plan (ICS Form 205),
  * Medical plan (ICS Form 206),
  * Safety plan (ICS Form 208), and

* Traffic plan.

- The IAP serves as a guide so that operational effectiveness can be evaluated based on the objectives set for the operational period.
- As work progresses, priorities change based upon a continual evaluation of the incident.
- Flexibility is important, and contingency plans are a necessity in dynamic and hazardous incidents.

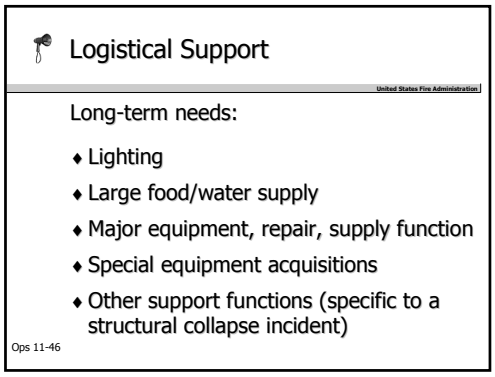
Slide 11-45: Operational Periods



B. Operational periods

- Operational periods are planned times needed to achieve objectives.
- Rapidly changing incidents require shorter operational periods.

Slide 11-46: Logistical Support



C. Logistical support

- An incident of major complexity and size involving possibly hundreds of response personnel requires a logistics section capable of meeting the needs of the incident.
- Long-term operations may require:

* Lighting;
* Large food and water supply;
* Major equipment repair and supply function;
* Special equipment acquisitions; and
* Other support functions specific to a structural collapse incident (for example, heavy equipment and structural stabilization resources).

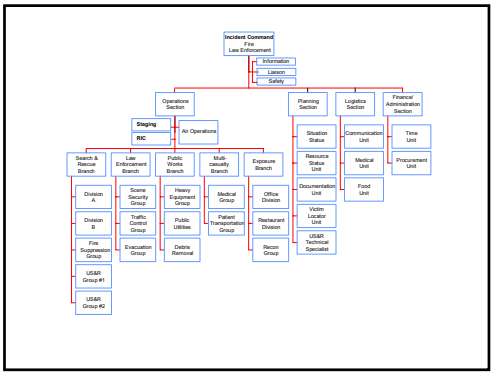
Slide 11-47: Incident Facilities

D. Incident facilities

Incident facilities used for an extended operation at a major structural collapse may require:

- Several staging areas for specific resources;
- A large base to accommodate personnel through rehab, rest, and feeding cycles, and to fuel and repair vehicles and specialized equipment;
- A supply and equipment lot distribution system;
- A command post with the capability to sustain a large command staff;
- Large triage and treatment areas;
- A morgue; and

Slide 11-48: Multibranch Response



- A decontamination area.

E. Extended ICS organization

- A structural collapse incident of major magnitude may require a unified command incident organization.

Instructor Notes:

Refer students to Figure 11-3, Multibranch Response, in their student manuals. The figure is on the following page.

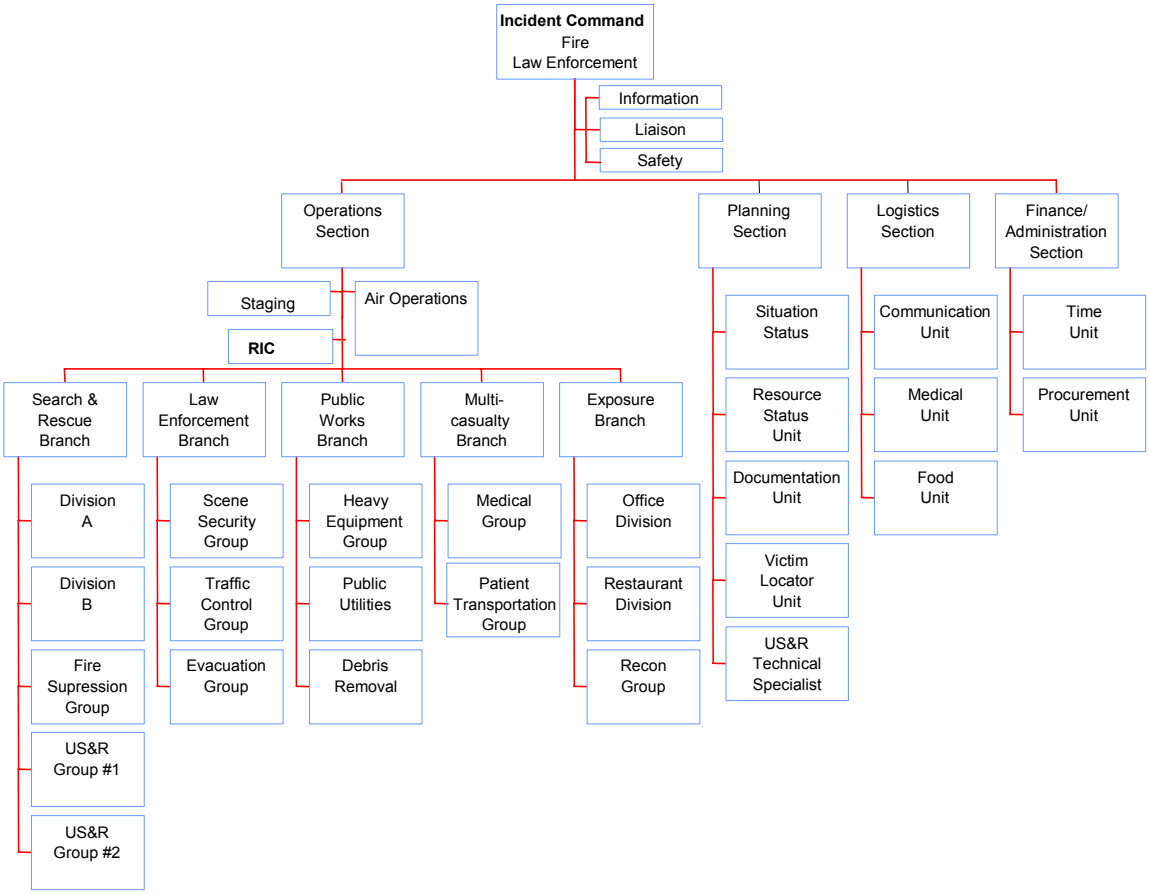
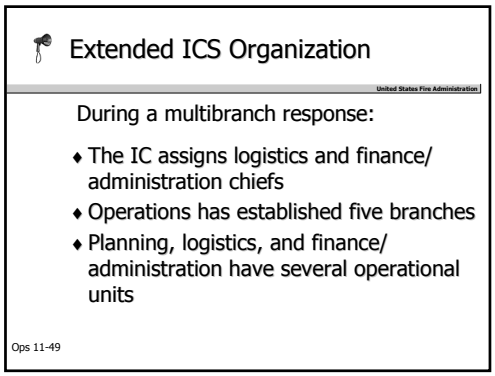


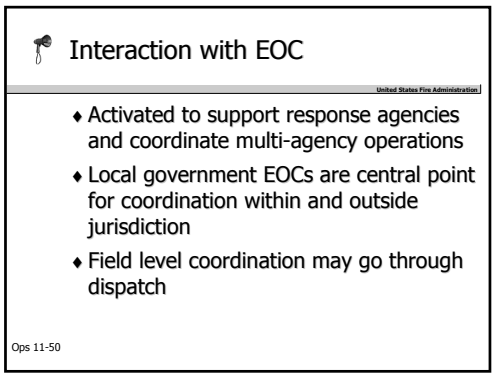
Figure 11-2: Multibranch response

Slide 11-49: Extended ICS Organization



- Multibranch response organization:
  - ∗ The IC has assigned logistics and finance/administration chiefs.
  - ∗ The operations section has established five branches to coordinate and manage resources better.
  - ∗ The planning, logistics, and finance/administration section have several units operational to support the large amount of resources at the incident.

Slide 11-50: Interaction with EOC



F. ICS/EOC interaction

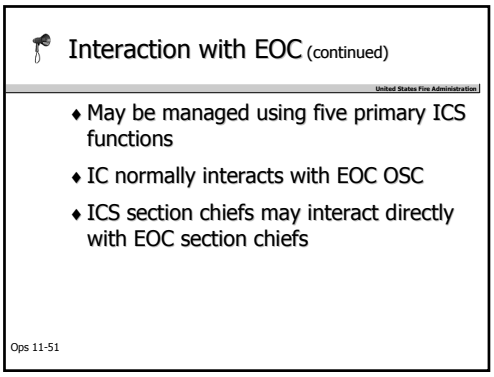
- An EOC is a location from which centralized emergency management can be performed.
  - ∗ The activation and level of activity and staffing depends on the size and complexity of the emergency.
  - ∗ The local government EOC is activated when field response agencies need support, and to facilitate overall coordination of multi-agency operations.
- Local government EOCs serve as the central point for coordination within and outside the jurisdiction. These EOCs gather

and disseminate information and assist in supporting field operational IC.

- Field level command post coordination with the local EOC may go through the dispatch center to the EOC or, in some jurisdictions, the ICS field command may have direct communications with and receive policy direction from the EOC.

  Coordination may be with other agencies, organizations, the media, and citizens within and outside of the local government involved.

Slide 11-51: Interaction with EOC (continued)



- EOCs may be managed using the five primary ICS functions of command, operations, planning, logistics, and finance/administration.

- The IC most likely would interact with the EOC operations section.

  * In some jurisdictions, local policy may provide for direct IC to EOC management interaction.

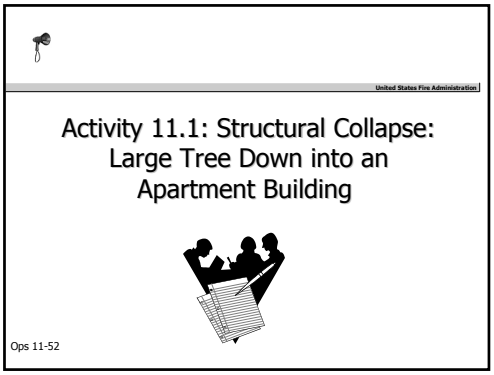
  * This may occur when there is a large single incident that has major impact on the community.

- It may be useful in some

situations to have direct coordination between incident sections and their counterpart EOC section (that is, the planning section).

- Under unified command, the EOC interactions are similar to those described above using their departments' contact in the operations section.

Slide 11-52: Activity 11.1: Structural Collapse Simulation Exercise



X. Activity 11.1: Structural Collapse Simulation Exercise (90 minutes)

Instructor Notes:

Refer students to Activity 11.1, Structural Collapse: Large Tree Down into an Apartment Building, in their student manuals.

Activity 11.1:

Structural Collapse: Large Tree Down into an Apartment Building

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a structural collapse incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in Appendix A), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups:**

   Each group will staff the positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. **Review the simulation rules:**

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control objectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will identify planning needs using the FOG Position Checklist: develop an alternate plan, collect and record information, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the times listed on each. The time in the upper right corner of each message indicates the

real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening, observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
- Planning Chief: Alternate plan
- Logistics Chief: Resource list
- Safety Officer: Safety message
- Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.

- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and discussing the following questions:

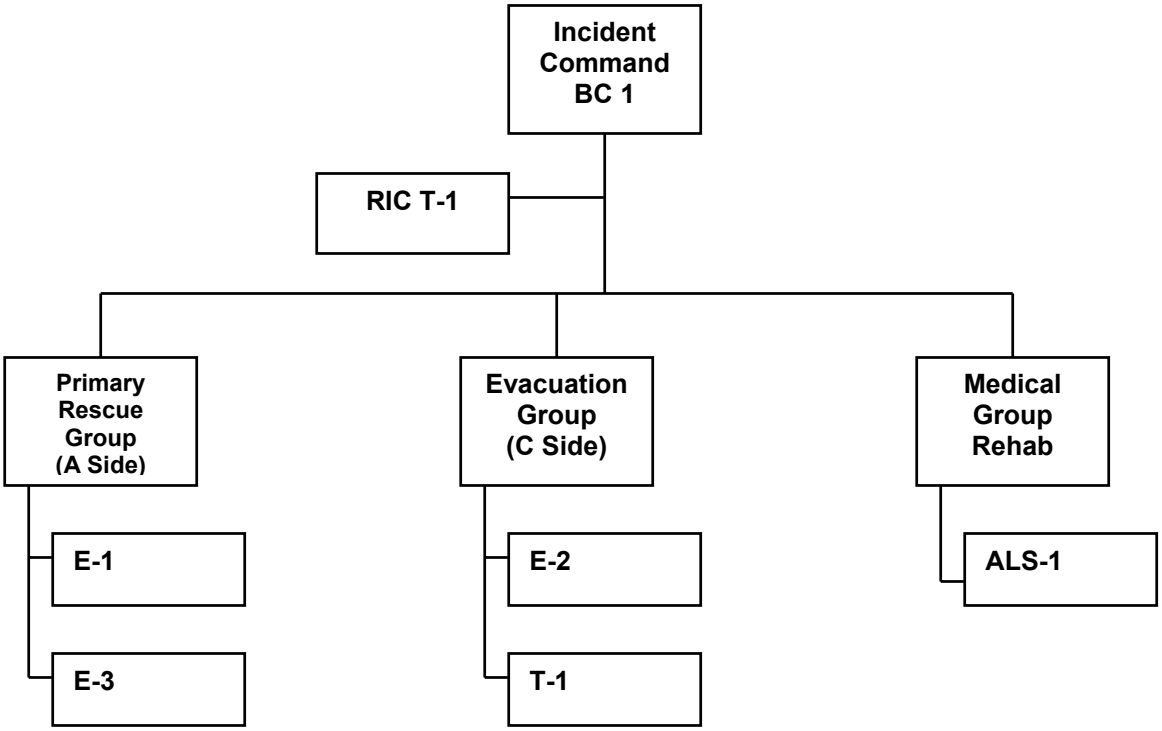
- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they

differ?

- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Sample Incident Organization

Structural Collapse Simulation Exercise



Incident overview:

Engines 1, 2, and 3; Truck1; Ambulance 1; and Battalion 1 respond to the structure collapse in Central City. Callers report a large tree down into an apartment building. The time is 0230 hours.

Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card — **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card — **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card — **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card — **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card — **Response time: 20 min.**

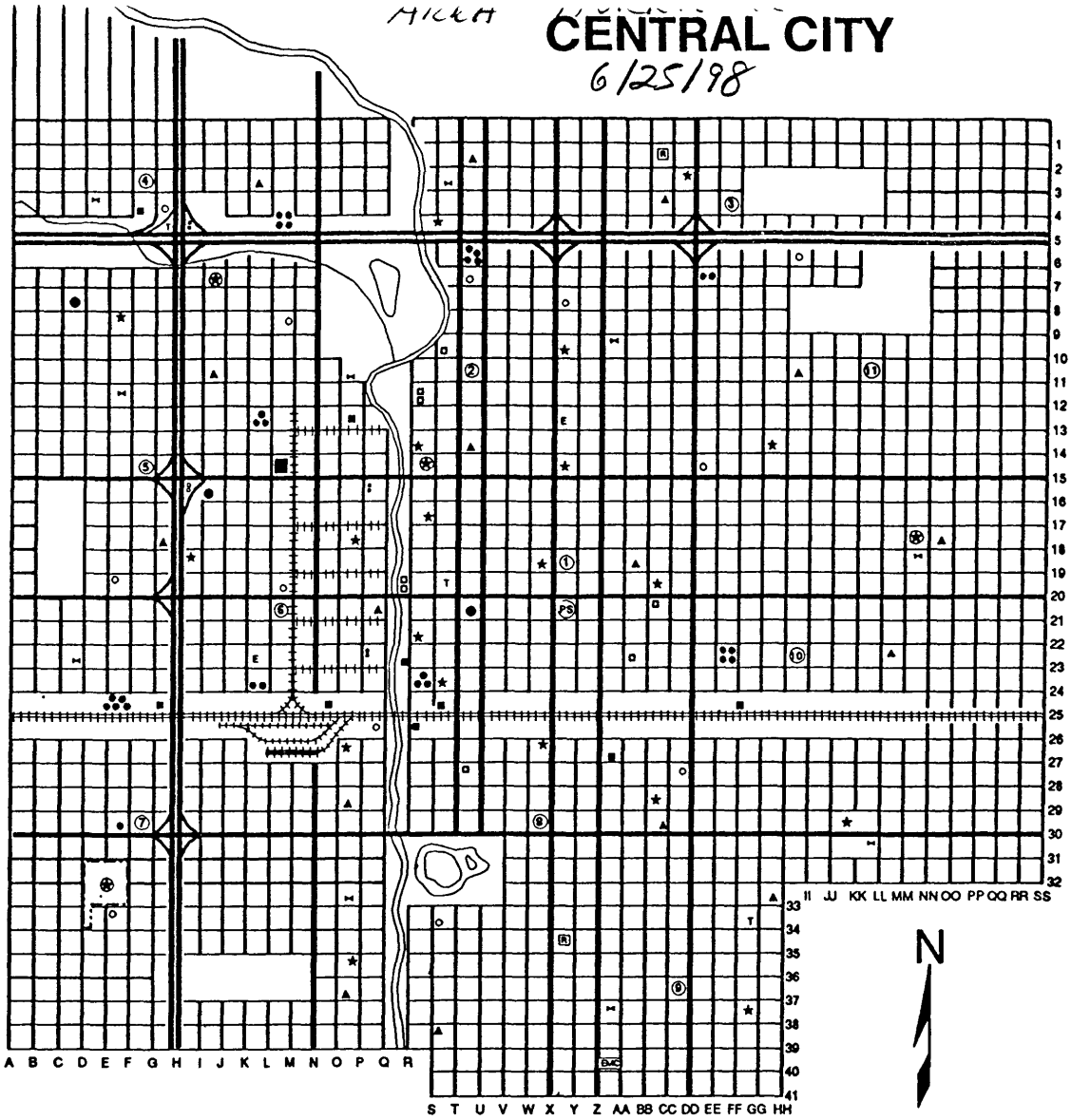
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card — **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card — **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

Instructor Notes:

These messages are examples of possible messages for the incident. You may need to adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 0230 hours**

To: Battalion Chief

Message:

Dispatch to units responding. We are receiving calls from people who say they are inside the building. Part of the front wall, roof, and 3rd floor have collapsed when the tree hit the building. People inside cannot get out.

Simulation Time: 00:00

SIMULATION MESSAGE

Message #2 **Incident Time: 0232 hours**

To: Battalion Chief

Message:

Dispatch to Battalion 1. We have received a call from the occupants of apartment 304. They say there were two adults and three children in the apartment. The parents are on the phone with us, and they cannot get to their children.

Simulation Time: 00:02

SIMULATION MESSAGE

Message #3 **Incident Time: 0233 hours**

To: Battalion Chief

Message:

Engine 1 is one the scene. We have a large tree down into an occupied apartment building. The building is a 3-story, lightweight wood-frame structure. Building is approximately 100 feet by 50 feet. The collapsed area is in the center of the front of the building. It appears that the tree has gone down through the roof and taken the 3rd floor and part of the 2nd floor down onto the 1st floor. There are people outside shouting at us that there are people trapped inside.

Simulation Time: 00:03

SIMULATION MESSAGE

Message #4 **Incident Time: 0234 hours**

To: Battalion Chief

Message:

Engine 2 is on the scene. We were able to see the rear of the structure as we approached the scene. There appears to be no damage back there. The collapse seems to involve only the front half of the building. We also have electrical wires that the tree fell across that are acing. We are now in front of the building near Side D.

Simulation Time: 00:04

SIMULATION MESSAGE

Message #5 **Incident Time: 0235 hours**

To: Battalion Chief

Message:

Battalion 1 is on the scene. Dispatch advises that there are multiple incidents as a result of the wind storm, and no other chief officer will be available for an undetermined amount of time to respond to the incident.

Simulation Time: 00:05

SIMULATION MESSAGE

Message #6 **Incident Time: 0237 hours**

To: Incident Commander

Message:

Engine 1 to Command. We have done a quick assessment. At this point, as best as we can tell, it appears that the tree fell into the building and down through one stack of apartments. The tree is lying at the 2nd floor level, but the collapsed area goes down to the 1st floor apartment. There are three addresses on the building, each with its own entrance. The involved area is just to the right of the center entrance.

Simulation Time: 00:07

SIMULATION MESSAGE

Message #7 **Incident Time: 0240 hours**

To: Incident Commander

Message:

Truck 1 is on the scene. We are with a man who says he is the resident manager.

Simulation Time: 00:10

SIMULATION MESSAGE

Message #8 **Incident Time: 0241 hours**

To: Incident Commander

Message:

Engine 3 is on the scene in the rear. We can see no damage, but we have a lot of people coming out the rear of the building on the ground level. There are also people on 3 balconies on the 3rd floor and 4 balconies on the 2nd floor. We can't tell yet how many people there are.

Simulation Time: 00:11

SIMULATION MESSAGE

Message #9 **Incident Time: 0244 hours**

To: Incident Commander

Message:

Truck 1 to Command. Three people just came out on the balcony 3rd floor just left of the collapsed area. They say they cannot get out through the interior stairway. It is blocked.

Simulation Time: 00:14

SIMULATION MESSAGE

Message #10 **Incident Time: 0247 hours**

To: Incident Commander

Dispatch to Command. We have someone on a cell phone who says that they are inside the building. They are in a void space with debris all around them. They are from apartment 301 and are not sure where they are now, just that they know they went down. There are four people, two adults and two children. The adults can hear the kids crying but can't get to them. The man says his arm is broken and has multiple cuts. His wife has a broken leg and is stuck under the bed they were on, and a wall or ceiling is on top of the bed. He cannot move the bed to free her. They also say they can smell gas. Apparently, they are close to an opening of some sort because they can also see the reflection of the emergency lights against the material above them.

Simulation Time: 00:17

SIMULATION MESSAGE

Message #11 **Incident Time: 0255 hours**

To: Incident Commander

Message:

Company on the interior reports a concern for secondary collapse. They have located two seriously injured children who need to be removed immediately from the area.

Simulation Time: 00:25

SIMULATION MESSAGE

Message #12 **Incident Time: 0300 hours**

To: Incident Commander

Message:

Tom Brokaw just approached the command post and said he was in town on a news assignment and wants to get the story.

Simulation Time: 00:30

SIMULATION MESSAGE

Message #13 **Incident Time: 0305 hours**

To: Incident Commander

Message:

Resident manager reports that there are a total of 14 apartments in the affected section of the building, 4 apartments on the 1st, 2nd, and 3rd floors, and 2 more apartments in the basement toward the rear of the building. His records say that there are a total of 43 people who live in those apartments.

Simulation Time: 00:35

SIMULATION MESSAGE

Message #14 **Incident Time: 0310 hours**

To: Incident Commander

Message:

The mayor is on the scene and wants a briefing.

Simulation Time: 00:40

SIMULATION MESSAGE

Message #15 **Incident Time: 0315 hours**

To: Operations/Logistics/Liaison

Message:

The simulation is over. Take 10 minutes to recap your activities.

Simulation Time: 00:45

SIMULATION MESSAGE

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Matrix: Structural Collapse		
Function	**Message # 1**	**Message # 6**
Command	Perform size-up, establish strategy, develop ICS structure. Monitor progress and evaluate strategy. Develop an action plan.	Monitor incident progress. Re-evaluate strategy, adjust as necessary. Coordinate command and general staff.
Safety	Review special considerations. Consider structural integrity. Address firefighter accountability.	Enforce safe corridors of operation. Consider need for assistant safety officers. Consult with US&R technical specialist.
Liaison		Identify assisting and cooperating agency contacts. Provide information to IC.
Information	Gather incident information.	Gather incident information. Prepare to deal with media response.
Operations	Develop operations plan and ICS structure (branch/division/group).	Deploy companies. Determine need for additional specialized resources. Maintain active communication with companies. Evaluate progress.
Planning	Predict incident progress. Predict resource needs	Modify IAP to meet changing situation. Establish situation and resource units.
Logistics	Anticipate special resource needs.	Anticipate EMS requirements (triage, treatment, transport). Anticipate need for other long-term needs.
Administration/ Finance		

Simulation Matrix: Structural Collapse		
Function	**Message # 8**	**Message # 10**
Command	Monitor progress, re-evaluate strategy. Support operations' requests for resources.	Monitor progress, re-evaluate strategy based on new information.
Safety	Continually evaluate structural integrity. Consider assigning assistant safety officer to collapse zone.	Assign assistant safety officer to collapse zone during extrication activities. Review and approve site safety plan for interior rescue operations.
Liaison	Maintain communication with cooperating and assisting agencies.	Maintain communication with agency representatives.
Information	Establish media staging area. Update information release.	Maintain media contacts. Prepare rescue personnel for interviews.
Operations	Reassign companies as necessary. Brief IC on operations' activities. Adjust tactics. Evaluate progress of rescue operations.	Continue top evaluate progress of operations activities. Adjust operations to new information. Prepare site safety plan for interior operations. Brief IC on rescue activities.
Planning	Modify action plan to meet changing situation. Predict incident progress. Maintain situation and resource status.	Predict incident progress based on new information. Maintain situation and resource status. Begin demobilization planning.
Logistics	Establish support for incident needs.	Establish facilities and support for Rehab Unit. Continue to provide support for incident needs.
Administration/ Finance		Maintain records of outside agency participation.

Simulation Matrix: Structural Collapse		
Function	**Message # 13**	**Message # 14**
Command	Monitor progress and evaluate strategy. Approve site safety plan for operations. Support operations' special needs.	Monitor progress of special operations. Review demobilization plan. Obtain briefing from subordinates.
Safety	Maintain safe operating conditions for incident personnel. Consider additional confined space safety personnel.	Main safe operating conditions as operations scale down. Maintain contact with structure specialists until all units are released from incident. Brief IC.
Liaison	Maintain communication with agency representatives.	Coordinate releases of cooperating and assisting agency personnel. Brief IC when completed
Information	Prepare IC for post incident interview. Update media releases. Prepare press release for print media.	Coordinate electronic and print media access to incident scene when operations determines it is safe. Brief IC before interview. Prepare incident summary for finance/admin.
Operations	Reassign resources to priority operations. Consider ordering additional special operations resources. Evaluate progress.	Release resources as incident stabilizes. Use special operations resources to stabilize structure. Coordinate operations plan with safety officer(s) and information officer.
Planning	Work with technical specialists. Predict resource needs. Document unit to prepare incident records.	Implement demobilization plan.
Logistics	Continue to support incident supply needs. Assign personnel to support and service branches to support incident needs.	Identify excess incident supplies. Prepare to close incident facilities, release personnel, and return equipment, supplies, etc.
Administration/ Finance	Create incident file. Obtain incident documentation from plans.	Document injuries and deaths. Collect data from plans on all incident activities (ICS 214). Collect all information on incident for department files.

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	

Major Hazards and Risks:

Narrative:

Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Activity 11.1:
Structural Collapse: Large Tree Down into an Apartment Building
Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a structural collapse incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (a second Aide designated for groups with more than 10)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

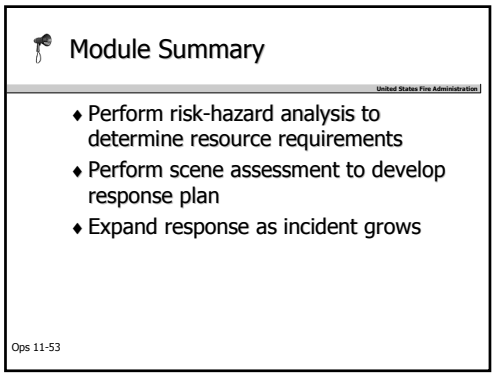
Activity 11.1:
Structural Collapse: Large Tree Down into an Apartment Building
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Slide 11-53: Module Summary



XI. Module Summary (10 minutes)

Instructor Notes:

Briefly summarize the module and provide students an opportunity to comment or ask questions.

A risk/benefit analysis is needed to determine resource requirements for potential structural collapse incidents.

Initial scene assessment and building triage provide for the development of the response plan and set the tone for operations at the incident.

A major structural collapse incident response grows from the initial response involving establishing command, performing size-up, developing an action plan, and deploying resources to an expanded response requiring reinforced resources, a larger incident organization, and additional support requirements.

MODULE 11

APPENDIX A

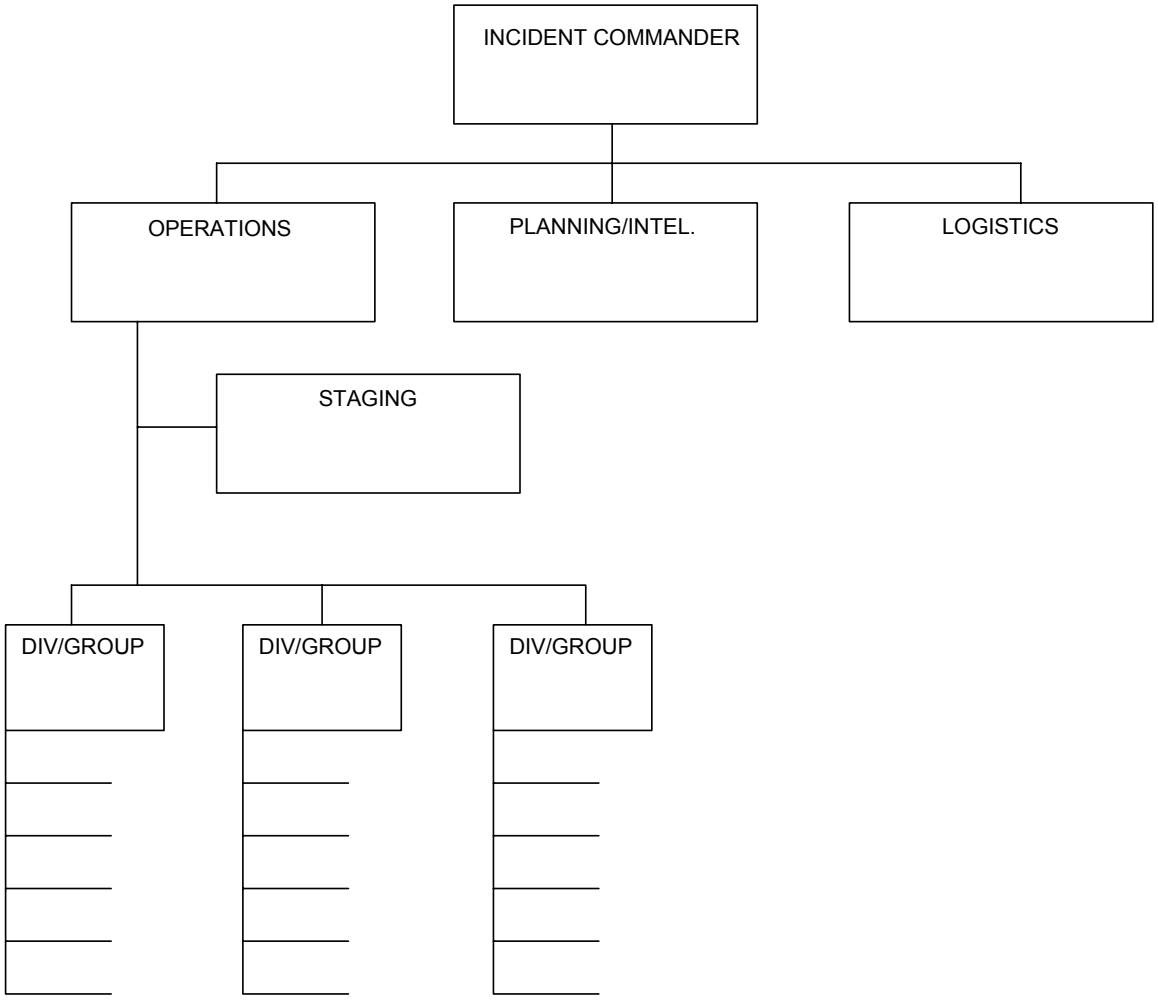
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

MODULE 11

APPENDIX B

STRUCTURAL COLLAPSE

SCENE ASSESSMENT CHECKLIST

STRUCTURAL COLLAPSE
SCENE ASSESSMENT CHECKLIST

BUILDING NAME OR STRUCTURE TYPE:_____ DATE:_____

LOCATION:_____ TIME:_____

OCCUPANCY TYPE:_____

CONSTRUCTION:_____ TYPE OF COLLAPSE:_____

NO. OF STORIES:_____ ACCESS TO INCIDENT SITE:_____

HAZARDS:

STRUCTURAL INSTABILITY
( ) ROOF
( ) FLOOR
( ) WALL
( ) COLUMN/BEAM
( ) OTHER

OVERHEAD HAZARDS
( ) HANGING WALLS
( ) HANGING FLOORS
( ) POWER LINES
( ) OTHER WIRES
( ) OTHER

SURFACE HAZARDS
( ) POWER LINES
( ) REBARS
( ) FLOODING
( ) UNSTABLE DEBRIS
( ) UNSTABLE OPENINGS

BELOW GRADE HAZARDS
( ) FLOODING
( ) ESCAPING GAS
( ) OXYGEN DEFICIENCY
( ) SHIFTING DEBRIS
( ) DEEP SHAFTS

DAMAGED UTILITIES
( ) NATURAL GAS
( ) LPG
( ) WATER
( ) EXPOSED WIRES
( ) RAW SEWAGE
( ) OTHER

HAZARDOUS MATERIALS
( ) CORROSIVE
( ) FLAMMABLE LIQUIDS
( ) FLAMMABLE GASES
( ) PESTICIDES
( ) POISONS
( ) RADIOACTIVE MATERIALS

HAZARDS: ( ) FIRE/SMOKE ( ) DUST ( ) BIOLOGICAL ( ) OTHER _____

VICTIMS:

VICTIMS REPORTED MISSING:_____ DETECTED:_____

LOCATION:_____ LOCATION:_____
LOCATION:_____ LOCATION:_____
LOCATION:_____ LOCATION:_____

VOID ACCESS AREAS:

SIDE A:_____ SIDE B:_____
SIDE C:_____ SIDE D:_____
ABOVE:_____ BELOW:_____

NOTES:_____

_____

_____

_____

BUILDING/SCENE DIAGRAM

MODULE 11

APPENDIX C

STRUCTURAL COLLAPSE

OPERATIONAL CHECKLIST

STRUCTURAL COLLAPSE OPERATIONAL CHECKLIST

I. ESTABLISH COMMAND

_____ Communicate the exact type of incident.
Type:_____

_____ Communicate the exact location of the incident.
Location:_____

_____ Communicate the staging areas for incoming apparatus.
Staging Area:_____

_____ Communicate the name of the incident.
Name of Incident:_____

_____ Communicate the location of the command post.
Location of Command Post:_____

II. DETERMINE THE EXTENT OF THE INCIDENT

_____ Establish hazard and safe zone and evacuate the area.

_____ Remove surface casualties and walking wounded if safe.

- Number Injured (Triage) _____ Minor Injuries _____
- Deceased _____ Delayed _____
  Immediate _____

_____ Number of people trapped: _____.

- Location(s):

1._____
2._____
3._____
4._____
5._____

_____ Number of people missing: _____.

- Last known location(s):

1._____
2._____
3._____
4._____
5._____

II. DETERMINE THE EXTENT OF THE INCIDENT (cont'd)

_____ Type of structure Description:

___ Residential.
___ Apartment House.
___ School.
___ Hospital or Care Facility.
___ Multi-Story/# Floors: _____.
___ Mercantile.
___ Commercial.
___ Industrial.

_____ Type of construction Description:

___ Wood Frame.
___ Unreinforced Masonry.
___ Reinforced Masonry.
___ Concrete Tilt-Up.
___ Concrete.
___ Steel Frame.

_____ Is further collapse possible? ___ Yes ___ No

_____ Are utilities secured?

- Gas ___ Yes ___ No
- Electric___ Yes ___ No
- Water ___ Yes ___ No

_____ Do atmospheric hazards exist? ___ Yes ___ No

III. DEVELOP INCIDENT ACTION PLAN AND MANAGEMENT ORGANIZATION

A. Requesting Additional Resources

___ First Alarm--Apparatus _____
___ Second Alarm--Apparatus _____
___ Third Alarm--Apparatus _____
___ Fourth Alarm--Apparatus _____

___ Fire Strike Team(s) _____
(Basic Rescue) _____

___ Light Rescue Strike Team(s) _____
(Wood Frame) _____

A. Requesting Additional Resources (cont'd)

___ Medium Rescue Strike Team(s)_____
(Cinderblock, two-story URM, _____
heavy timber, tilt-up) _____

___ Heavy Rescue Strike Team(s) _____
Type 1 & 2 construction, steel _____
structures, confined space) _____

___ Medical Strike Team(s) _____
Level of response ____ _____

___ Urban Search and Rescue Task Force TF- _____
62-Member/Self-sustaining 72 Hours TF- _____
Search/Rescue/Medical/Technical Team TF- _____
Heavy Concrete/Technical Rescue TF- _____

___ Specialized Resources: _____
(See directory) _____
_____
_____
_____

___ Staging Area/Base Considerations:

- Is the area large enough? ___ Yes ___ No
- Is security needed? ___ Yes ___ No
- Is a med./rehab area needed? ___ Yes ___ No
- Are feeding operations needed? ___ Yes ___ No
- Are toilet facilities needed? ___ Yes ___ No
- Are rest accommodations needed? ___ Yes ___ No
- Is logistical support for equipment repair and rehabilitation needed? ___ Yes ___ No

___ Communications Network:

- Channel _____ Designator _____
- Channel _____ Designator _____
- Channel _____ Designator _____
- Channel _____ Designator _____
- Channel _____ Designator _____
- Channel _____ Designator _____
- Channel _____ Designator _____

B. Structure Information

_____ Utilize structural engineers for assistance.

_____ Type of collapse pattern(s).
- _____ V-collapse.
- _____ Lean-to-collapse.
- _____ Unsupported lean-to-collapse.
- _____ Cantilever.
- _____ Pancake collapse.

____ Locate building owner or occupant(s) to obtain additional information concerning structure layout.

_____ Utilize building blueprints or drawings if available.

_____ Today's Date: _____ Time: _____ Day of Week: _____

_____ Structure size:
- Number of stories: _____.
- Size/length: ____ (ft); Width: ____ (ft); Height: ____ (ft).

_____ Construction type and materials.

_____ Attempt to establish location of voids.

C. Structure Entry

_____ Establish search plan.

_____ Have personnel report to check-in officer (note time).

_____ Brief personnel on search plan and possible location of victims and void spaces.

_____ Have all personnel check safety equipment.

_____ Designate communications channel and call sign.

_____ Access best entry route.

_____ Utilize search markings as needed.

_____ Establish a Rapid Intervention Team and stage within the inner perimeter.

D. Scene Safety

_____ Remove unnecessary civilians and personnel from area.

_____ Establish a perimeter:
Inner area: _____
Outer area: _____

_____ Designate:
- Safe travel zones.
- Danger zones.
- Overhead dangers.
- Hazardous areas.
- Restricted areas.
- Areas of retreat.
- Rehabilitation areas.
- Triage area.

_____ Designate:
- A restricted air space over the incident.
- Heavy equipment staging area--(beware of noise and vibrations).
- Equipment staging, work area, cutting station.

_____ Secure utilities:
____ Gas.
____ Electric.
____ Water.

_____ Provide exterior shoring and cribbing where needed to prevent further collapse and stabilize the structure.

_____ Locate points of entry and designate same with building markings which should include date, time, company, and specialized hazards.

_____ Assign an entry officer to the inner perimeter "Hot Zone" and restrict access to authorized personnel only. Establish an entry and exit time log.

_____ Utilize an emergency evacuation signaling system. All personnel who enter the inner perimeter should be familiar with these signals:

- Cease operations/all quiet--1 long blast (3 seconds).
- Evacuate area--1 short blast (1 second each).
- Resume operations--1 long and 1 short blast.

E. Exploration of voids

___ Shore and crib as needed for safety.

___ Establish emergency evacuation routes (keep clear).

___ Utilize selective debris removal, cutting and breaching.

___ Test for toxic and explosive gases as needed.

___ Establish oxygen percentage: _____.

___ Identify hazards and mark same.

___ Follow OSHA confined space guidelines as applicable.

___ Provide positive pressure ventilation or utilize SCBAs where needed.

___ Be aware of fatigue of rescue personnel.
- Check entry times.
- Rest, rotate and rehabilitate as needed.

F. Victim Priorities

Once the victim(s) has/have been located:

___ Attempt to make contact. Establish their:
- Mental status.
- Medical condition.
- Environment.

___ Establish extrication procedures.
- Consider what is trapping the victim(s).
- Consider possible load shift, secondary collapse or aftershock.
- Consider the victim's status and environment.

___ If multiple victims, evaluate the following:
- Survivability.
- Extrication difficulty.
- Estimated extrication time.
- Prioritize victim extrication based upon these categories.

____ Once patient contact has been made:
- Consider crush syndrome and treat for same.
- Treat and package the victim for removal.

G. Situation Status

_____ Conduct situation briefings.

_____ Examine problems.

_____ Develop strategies.

_____ Re-establish priorities as needed.

_____ Request additional resources as needed.

_____ Medical control.

_____ Utilize and control volunteers.

H. Incident Wrap-up

___ Establish that areas have been searched and all victims have been removed from the structure.

___ Develop plan to retrieve victims' personal items.

___ Stabilize structure and provide security.

___ Rest and rehabilitate all personnel.

___ Debrief all personnel.

___ Demobilize all equipment and apparatus.

___ Maintain accurate records regarding actions taken, times and personnel, equipment, apparatus, and agencies involved with the incident.

___ Conduct critical incident stress debriefing as needed.

___ Critique the incident.

___ Follow up with both victim (s) and rescuer status checks.

___ Document response activities.

MODULE 11

APPENDIX D

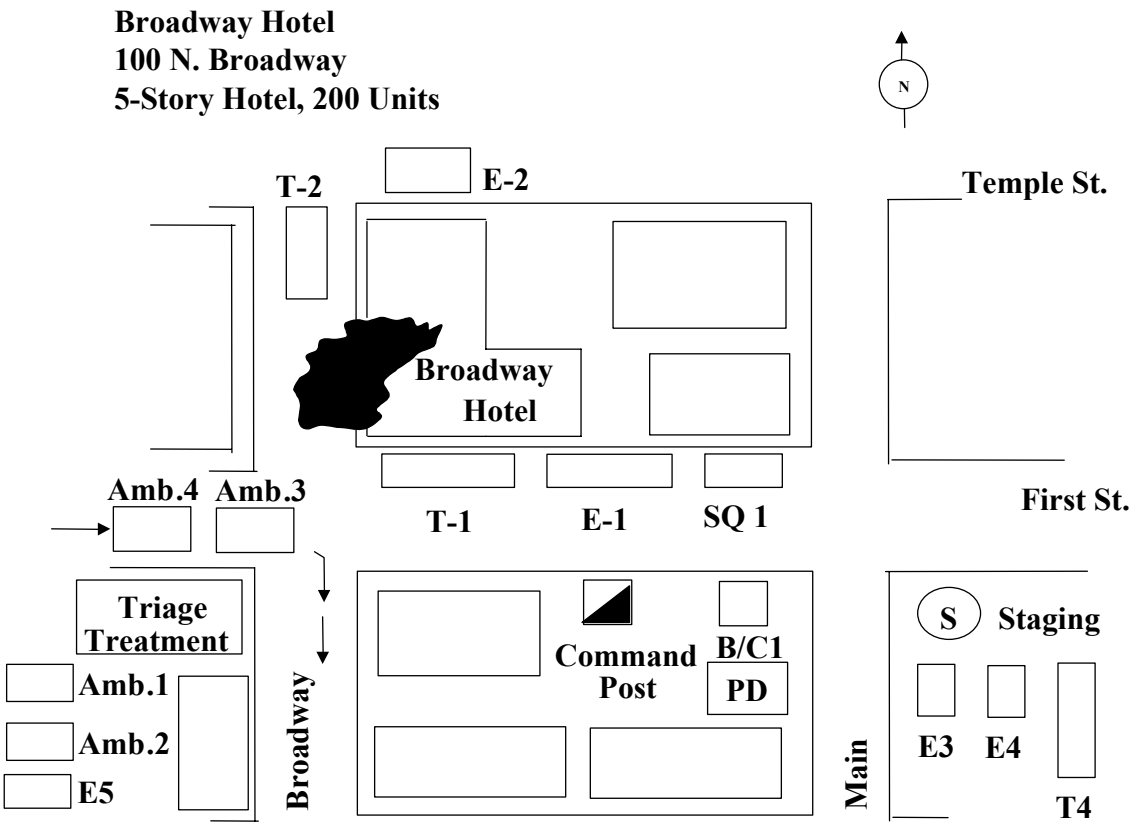
SAMPLE ICS FORM 201

STRUCTURAL COLLAPSE

Instructions for completing the following Incident Briefing (ICS Form 201)		
Item Number 1	Incident Name	Enter name of incident.
Item Number 2	Date Prepared	Enter date (month/day/year).
Item Number 3	Time Prepared	Enter time prepared (24 hour clock).
Item Number 4	Map Sketch	Show: perimeter, control lines, structures, resource assignments, incident facilities, and other special information on a sketch map (or attached to a map).
Item Number 5	Prepared by	Enter the name and position of the person completing the form.
Item Number 6	Summary of Current Objectives and Actions	Enter the strategy and tactics used on the incident and note any specific problem areas.
Item Number 7	Current Organization	Enter on the organization chart the names of the organization individuals assigned to each position. Modify chart as necessary.
Item Number 8	Resource Summary	Enter the following information about the summary resources ordered: - Resources ordered (enter the number and type of resources ordered). - Resource identification (enter the agency identifier: S/T, TF, kind and type). - ETA/on scene (enter the estimated time of arrival. Place the arrival time or a checkmark in the "on scene" column upon arrival). - Location/assignment (enter the assigned location of the resource and/or the actual assignment).
Note: additional pages may be added to this form if needed.		

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
	Broadway	**October 5, 1999**	**0300 HRS.**

4. MAP SKETCH

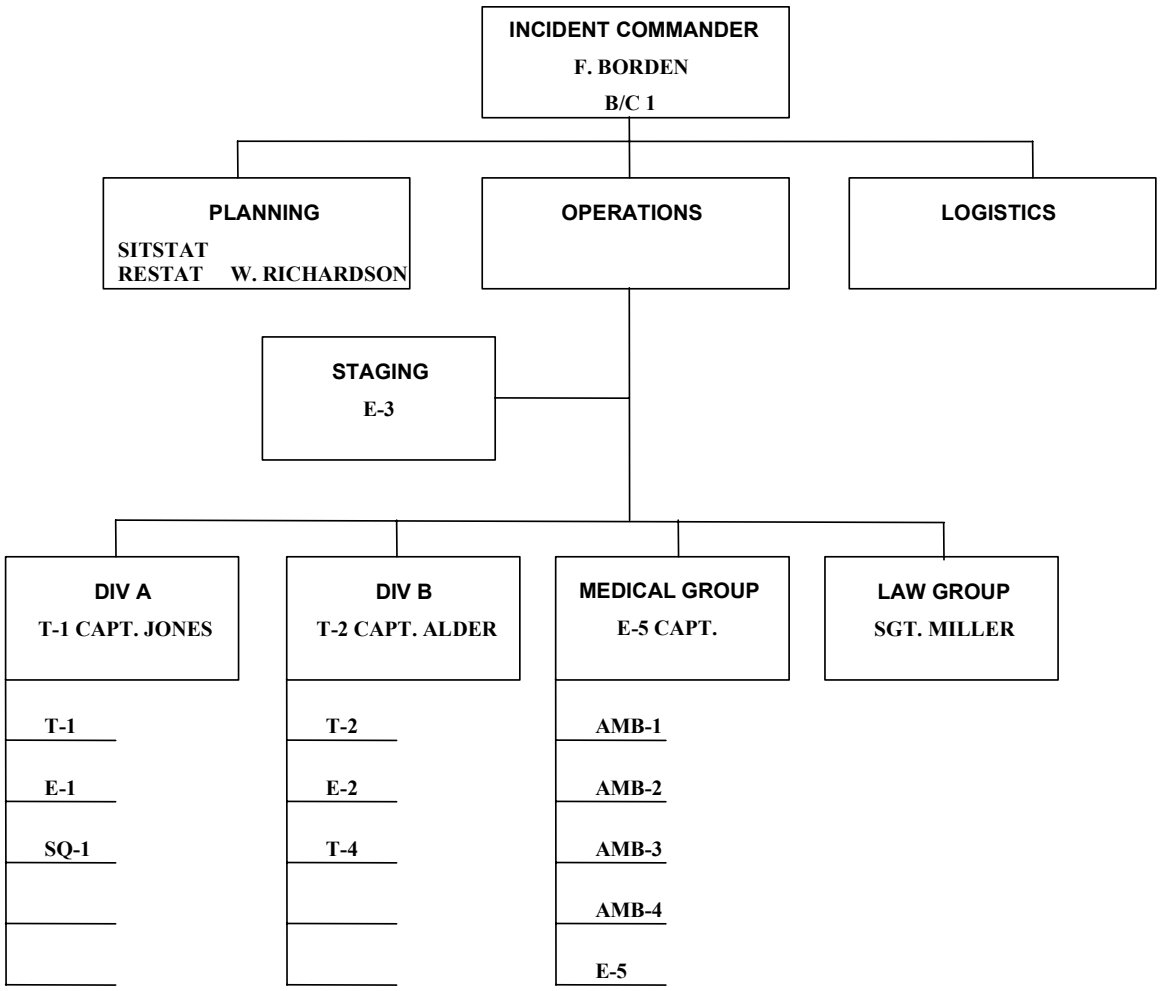


ICS 201	PAGE 1	5. PREPARED BY (NAME AND POSITION) FFTR. W. RICHARDSON, SITSTAT

6. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS
CURRENT OBJECTIVES:
1. Recon collapse site.
2. Establish collapse zone and evacuate.
3. Set up triage/treatment area.
4. Set up traffic control and perimeter--one block square.
5. Perform search and rescue--surface victims.
6. Start search and rescue--interior.
7. Control utilities and hazards.
CURRENT ACTIONS:
1. E-1 completed recon and evacuating people from collapse zone.
2. T-1, T-2, and E-2 performing search and rescue--surface victims.
3. AMB 1 set up triage/treatment area and transport.
4. SQ 1 initiated interior search.
5. T-4 controlling hazards.
6. Police set up perimeter control.
7. Requested E-4 to set up as rapid intervention crew (RIC).
8. Requested: 3 E, 2 T, 1 heavy rescue, 4 amb., 2 chiefs, utilities, structural engineer, and technical search team.

ICS 201	PAGE 2	

7. CURRENT ORGANIZATION



ICS 201	PAGE 3	

8. RESOURCES SUMMARY				
RESOURCES ORDERED	**RESOURCE IDENTIFICATION**	**ETA**	**ON SCENE ✓**	**LOCATION/ASSIGNMENT**
B/C	**B/C 1**		✓	**I/C CP @ 1ST AND MAIN**
E	**E 1**		✓	**DIV. A--RECON/EVAC.**
T	**T 1**		✓	**DIV. A CAPT., S&R**
E	**E 2**		✓	**DIV. B, S&R**
T	**T 2**		✓	**DIV. B CAPT., S&R**
E	**E 3**		✓	**STAGING MGR.**
E	**E 4**		✓	**STAGING RIC**
T	**T 4**		✓	**DIV. B--HAZARD CONTROL**
SQ	**SQ 1**		✓	**DIV. A--S&R**
E	**E 5**		✓	**MED. GROUP, CAPT.--SUPERVISOR**
AMB.	**AMB. 1--ALS**		✓	**MED. GROUP--TRIAGE**
AMB.	**AMB. 2--ALS**		✓	**MED. GROUP--TREATMENT**
AMB.	**AMB. 3--ALS**		✓	**MED. GROUP--TRANS.**
AMB.	**AMB. 4--BLS**		✓	**MED. GROUP--TRANS.**
E	**E 10**	**0310**		
E	**E 11**	**0315**		
E				
T	**T 27**	**0320**		
T				
HR				
CHIEF	**B/C 2**			
CHIEF				
ICS 201	PAGE 4	PREPARED BY: **W. RICHARDSON**		

8. RESOURCES SUMMARY				
RESOURCES ORDERED	**RESOURCE IDENTIFICATION**	**ETA**	**ON SCENE ✓**	**LOCATION/ASSIGNMENT**
AMB--ALS	**R/A 33**	**0310**		
AMB-ALS				
AMB--BLS				
AMB--BLS				
STR. ENGR.	**DAVID HAMMOND**	**0400**		
TECH SEARCH				
POLICE	**SGT. MILLER**	**0250**	✓	**LAW GROUP PERIMETER CONTROL**
POWER CO.		**0330**		
GAS CO.				
WATER CO.				
TEL. CO.				
ICS 201	PAGE 4 (cont'd)	PREPARED BY: **W. RICHARDSON**		

MODULE 12

MODULE 12

TERRORIST INCIDENT SIMULATION EXERCISE

MODULE 12:

TERRORIST INCIDENT SIMULATION EXERCISE

Terminal Objective

Upon completing the module, students will be able to effectively manage a terrorist incident.

Enabling Objectives

Students will:

- Identify the elements of pre-incident planning for terrorist incidents;
- Identify the elements of a Site Safety and Health Plan;
- Identify potential terrorist incident complexities;
- Establish incident objectives;
- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident, including the appropriate placement of the Information and Intelligence function.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer
- LCD projector
- One portable screen or classroom equipped with screen
- Chalkboard/wipeboard
- Easel pads with markers
- Command Worksheets (may use local fire department worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than “normal” first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who makes command level decisions based on strategic

objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities. Some of these hazards are significant and are known as target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

Expanded Written Incident Action Plan

This course is designed for battalion chief level officers operating at target hazard incidents that usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

The instructor should carefully read the instructor guide and the student manual and become familiar with the content before presenting the course.

The module combines a lecture and simulation for a terrorist incident. Ensure that students understand the management needs, cues, and ICS organization structure needed at terrorist incidents.

Methodology

This module uses lecture, discussion, and a simulation exercise.

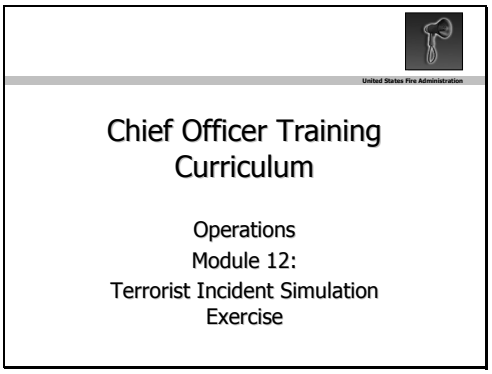
Outline

I. Objectives and Overview ..... 5 minutes
II. Pre-Incident Planning ..... 10 minutes
III. Action Plan ..... 20 minutes
IV. Terrorist Incident Operational Considerations ..... 10 minutes
V. Law Enforcement ..... 10 minutes
VI. Tactical Considerations ..... 25 minutes
VII. Activity 12.1: Terrorist Incident Simulation Exercise ..... 150 minutes
VIII. Module Summary ..... 10 minutes
240 minutes

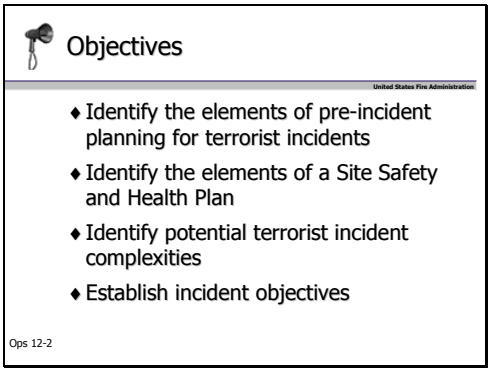
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

Slide 12-1: Module 12, Terrorist Incident Simulation Exercise



Slide 12-2: Objectives



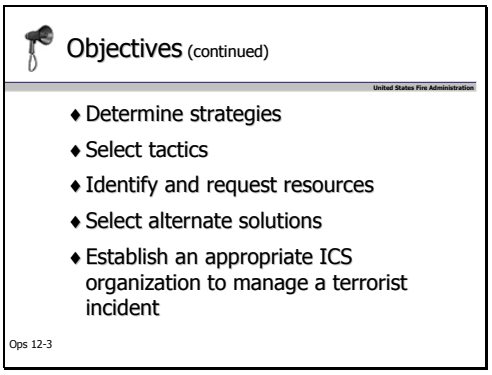
I. Objectives and Overview (5 minutes)

A. Objectives

Students will be asked to:

- Identify the elements of pre-incident planning for terrorist incidents;
- Identify the elements of a Site Safety and Health Plan;
- Identify potential terrorist incident complexities;
- Establish incident objectives;

Slide 12-3: Objectives (continued)



- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

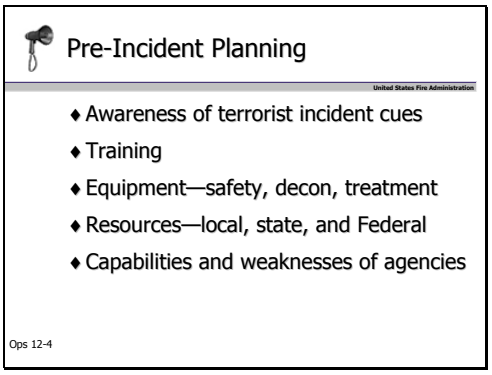
B. Overview

The purpose of this module is to provide you with practice in applying the ICS management organization to a terrorist incident.

Before the simulation exercise, we will discuss:

- Pre-incident planning for terrorist incidents;
- Written action plans;
- Terrorist incident operational considerations;
- Law enforcement considerations; and
- Tactical objectives.

Slide 12-4: Pre-Incident Planning



II. Pre-Incident Planning (10 minutes)

Community preparedness is the key to success during a Nuclear, Biological, Chemical (NBC) terrorist incident. The following issues must be considered and addressed during pre-incident planning:

- Awareness of terrorist incident cues;
- Training in:
  - Unified command practices,
  - Selection of proper strategies,
  - Selection of proper tactics, and
  - Selection of proper tasks;
- Equipment—Proper equipment must be available:
  - Safety,
  - Decontamination, and
  - Treatment.
- Resources—Knowledge of, and ability to access, appropriate local, state, Federal, and specialized resources is necessary; and
- Capabilities and weaknesses of other agencies:

* Haz mat teams can't handle bombs, and

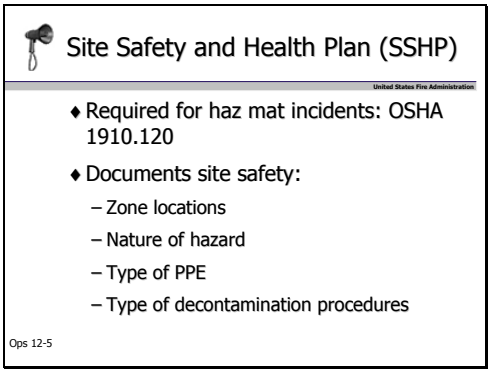
* Bomb squad can do Level A.

III. Action Plan (20 minutes)

A. Written action plan

- The IAP is not always verbal. A written plan should be developed as soon as possible.
- Written action plans contain:
  * General control objectives,
  * An incident strategy, and
  * Specific tactical objectives.
- The plan consolidates all incident information in order to reduce confusion.

Slide 12-5: Site Safety and Health Plan (SSHP)

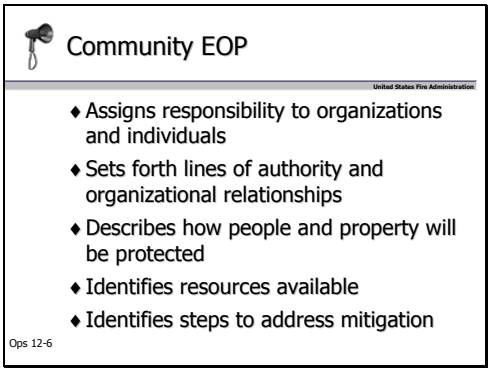


B. Site Safety and Health Plan (SSHP)

- This plan is required if an incident involves hazardous materials.
- Federal regulation (OSHA 1910.120) requires an SSHP to be created.
- The plan helps document the specific actions and safety procedures necessary for the site:

* Zone locations,
* Nature of the hazard,
* Type of PPE to be worn, and
* Type of decontamination procedures to follow.

Slide 12-6: Community EOP

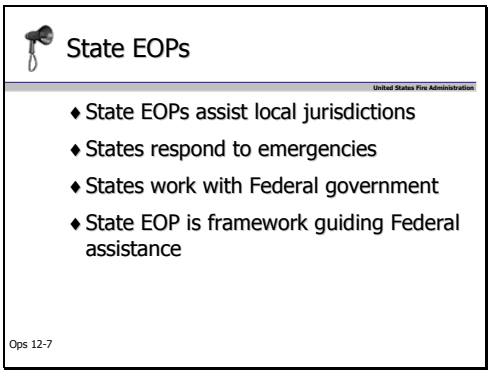


C. Obtaining needed resources

Every community should have an Emergency Operations Plan (EOP) in place to deal with natural and man-made disasters. The EOP:

- Assigns responsibility to organizations and individuals;
- Sets forth lines of authority and organizational relationships;
- Describes how people and property will be protected in emergencies and disasters;
- Identifies personnel, equipment, facilities, supplies, and other resources available; and
- Identifies steps to address mitigation concerns during response and recovery actions.

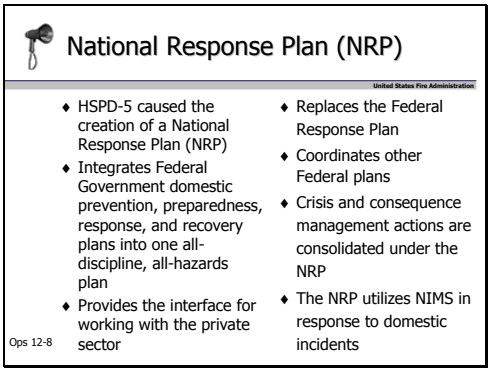
Slide 12-7: State EOPs



D. State EOPs

- State EOPs assist local jurisdictions that request assistance.
- States themselves respond to emergencies.
- States work with the Federal government when Federal assistance is requested.
- The state EOP is the framework that guides Federal assistance to local jurisdictions.

Slide 12-8: National Response Plan

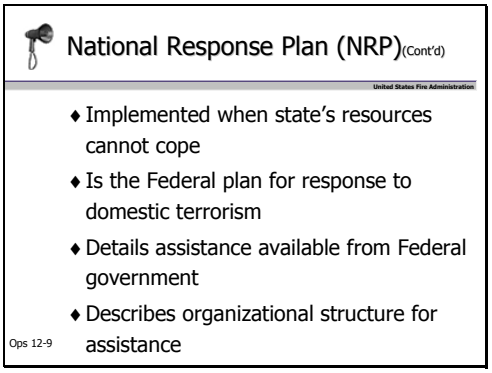


E. The National Response Plan (NRP)

- HSPD-5 caused the creation of a National Response Plan (NRP)
- Integrates Federal Government domestic prevention, preparedness, response, and recovery plans into one all-discipline, all-hazards plan
- Provides the interface for working with the private sector
- Replaces the Federal Response Plan
- Coordinates other Federal plans
- Crisis and consequence management actions are consolidated under the NRP.

- The NRP utilizes NIMS in response to domestic incidents

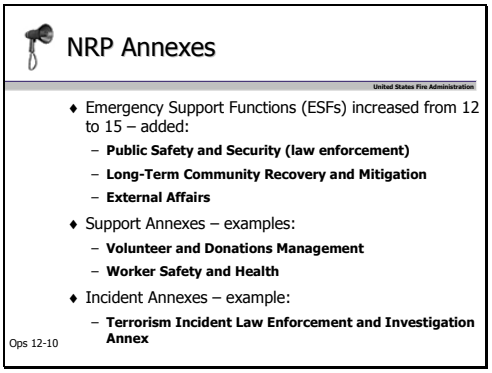
Slide 12-9: National Response Plan (cont'd)



The NRP

- Is implemented when the State's resources cannot cope with a disaster;
- Is the Federal plan for response to domestic terrorism and Incidents of National Significance;
- Details what the Federal government will provide in the way of emergency assistance; and
- Describes an organizational structure for providing assistance.
- The Environmental Protection Agency (EPA) has the authority and responsibility to respond to radiological and chemical incidents.
- The on-scene EPA coordinator will manage all Federal environmental response efforts.

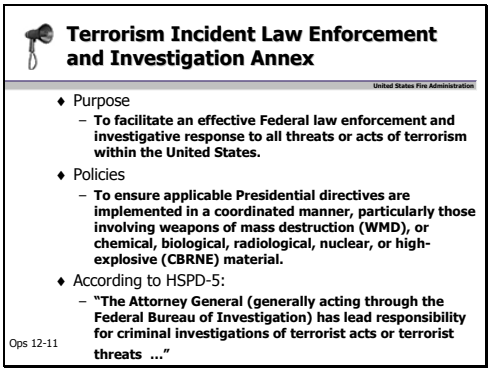
Slide 12-10: NRP Annexes



F. NRP Annexes

- Emergency Support Functions (ESFs) increased from 12 to 15 – added:
  - Public Safety and Security (law enforcement)
  - Long-Term Community Recovery and Mitigation
  - External Affairs.
- Support Annexes – examples:
  - Volunteer and Donations Management
  - Worker Safety and Health
- Incident Annexes – example:
  - Terrorism Incident Law Enforcement and Investigation Annex

Slide 12-11: Terrorism Incident Law Enforcement and Investigation Annex



G. Terrorism Incident Law Enforcement and Investigation Annex

- The **purpose** of this Annex is to facilitate an effective Federal law enforcement and investigative response to all threats or acts of terrorism within the United States.

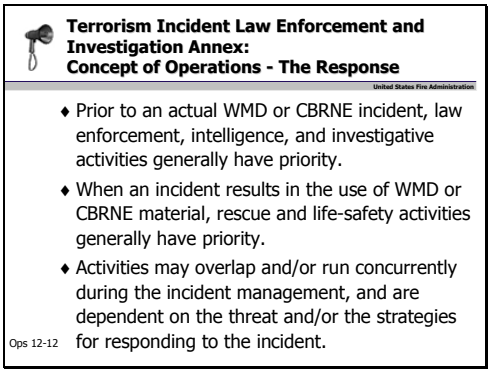
- **Policies**

  * The United States regards terrorism as a potential threat to national security, as well as a violent criminal act, and applies all appropriate means to combat this danger. In doing so, the United States vigorously pursues efforts to deter and preempt these crimes and to apprehend and prosecute directly, or assist other governments in prosecuting, individuals who perpetrate or plan terrorist attacks.

  * To ensure the policies established in applicable Presidential directives are implemented in a coordinated manner, this annex provides overall guidance to Federal, State, local, and tribal agencies concerning the Federal Government's law enforcement and investigative response to potential or actual terrorist threats or incidents that occur in the United States, particularly those involving weapons of mass destruction (WMD), or chemical, biological, radiological, nuclear, or high-explosive (CBRNE) material.

- According to HSPD-5: "The Attorney General has lead responsibility for criminal investigations of terrorist acts or terrorist threats …"
  - Generally acting through the Federal Bureau of Investigation (FBI), the Attorney General, in cooperation with other Federal departments and agencies engaged in activities to protect our national security, shall also coordinate the activities of the other members of the law enforcement community …"
  - This annex supports the portion of Presidential Decision Directive – 39 (PDD-39 issued in June of 1995) that named the FBI as the lead investigative Federal agency for an act of terror.

Slide 12–12: Terrorism Incident Law Enforcement and Investigation Annex Concept of Operations – The Response

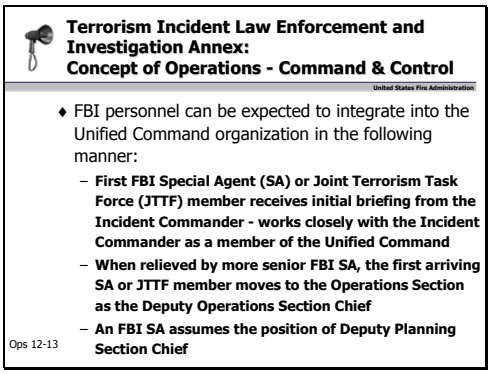


Terrorism Incident Law Enforcement and Investigation Annex Concept of Operations – The Response

- Prior to an actual WMD or CBRNE incident, law enforcement, intelligence, and investigative activities generally have priority.
- When an incident results in the use of WMD or CBRNE material, rescue and life-safety activities generally have priority.

- Activities may overlap and/or run concurrently during the incident management, and are dependent on the threat and/or the strategies for responding to the incident.

Slide 12-13: Terrorism Incident Law Enforcement and Investigation Annex Concept of Operations – Command and Control



Terrorism Incident Law Enforcement and Investigation Annex Concept of Operations – Command and Control

- The FBI is the lead agency for criminal investigations of terrorist acts or terrorist threats and intelligence collection activities within the United States.

- FBI personnel can be expected to integrate into the Unified Command organization in the following manner:

  * The first FBI Special Agent (SA) or Joint Terrorism Task Force (JTTF) member responding receives an initial briefing from the Incident Commander or his/her designee and works closely with the Incident Commander as a member of the Unified Command. When a more senior FBI SA arrives on the scene, he/she assumes the role of the FBI representative in the Unified Command.

* The first arriving SA or JTTF member moves to the Operations Section as the Deputy Operations Section Chief. This position is responsible for managing the deployment and coordination of Federal law enforcement and investigative assets in support of the Incident Action Plan.

* An FBI SA assumes the position of Deputy Planning Section Chief. This position permits the FBI SA to remain updated on the situation and serve as a conduit for requests for additional law enforcement and investigative assets. The Agent also inputs Federal objectives into the developing incident action plan and performs other duties as appropriate.

- Investigative and intelligence activities are managed by the FBI from an FBI command post or Joint Operations Center (JOC).

- Intelligence Function –

  * Manages the collection, analysis, archiving, and dissemination of relevant and valid investigative and strategic intelligence.

Slide 12-14: Terrorism Incident Law Enforcement and Investigation Annex Concept of Operations – Command and Control (cont'd)

Terrorism Incident Law Enforcement and Investigation Annex:
Concept of Operations - Command & Control

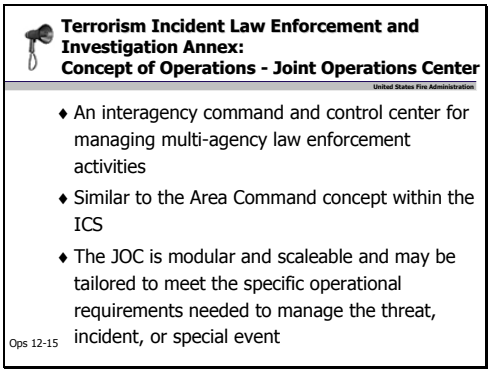
United States Fire Administration

- Investigative and intelligence activities are managed by the FBI from an FBI command post or Joint Operations Center (JOC).
- Intelligence Function
  - Manages the collection, analysis, archiving, and dissemination of relevant and valid investigative and strategic intelligence.
  - Fuses historical intelligence from a variety of sources with new intelligence specific to the threat, critical incident, or special event.

Ops 12-14

* Fuses historical intelligence from a variety of sources with new intelligence specific to the threat, critical incident, or special event.

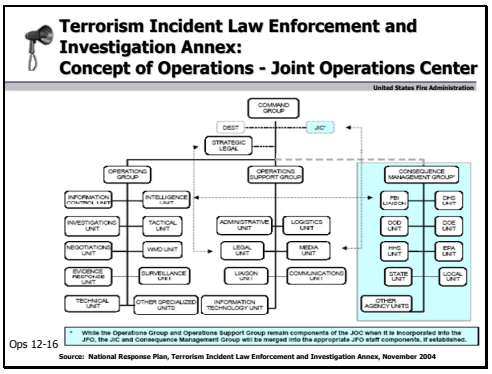
Slide 12-15: Terrorism Incident Law Enforcement and Investigation Annex Concept of Operations – Joint Operations Center



Terrorism Incident Law Enforcement and Investigation Annex Concept of Operations – Joint Operations Center

- An interagency command and control center for managing multi-agency preparation for, and the law enforcement and investigative response to, a credible terrorist threat or incident.
- Similar to the Area Command concept within the ICS, the JOC also may be established to coordinate and organize multiple agencies and jurisdictions during critical incidents or special events.
- The JOC is modular and scaleable and may be tailored to meet the specific operational requirements needed to manage the threat, incident, or special event.
- Crisis and consequence management actions are consolidated under the NRP. The NIMS provides the framework within which the ICS and JOC structures operate for a unified approach to domestic incident management.

Slide 12-16:
Concept of Operations – Joint Operations Center

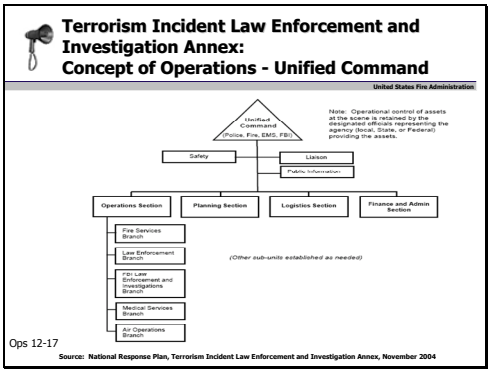


This graphic is taken from the Terrorism Incident Law Enforcement and Investigation Annex of the National Response Plan published in November 2004.

The FBI has developed policy and practiced procedures for the establishment and operation of a JOC. As of the writing of this IG, the actual field implementation of the JOC (and integration with a Unified Command) is largely untested.

During the response to the Pentagon in 2001 a JOC was established and operated by the FBI, as well as the FBI maintaining a presence in the Incident Command Post. From all accounts, this methodology worked well to accomplish the investigative goals of the FBI while providing critical (operational) incident information to the Unified Command.

Slide 12-17: Terrorism Incident Law Enforcement and Investigation Annex Concept of Operations – Unified Command



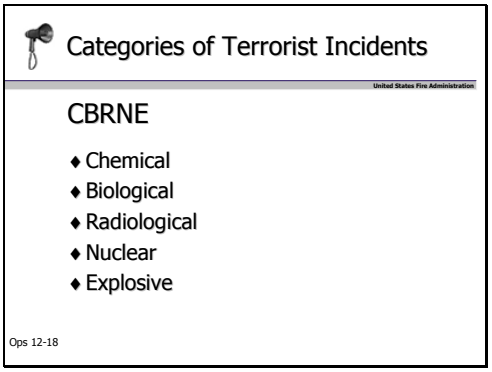
This graphic is taken from the Terrorism Incident Law Enforcement and Investigation Annex of the National Response Plan published in November 2004.

Note the FBI Law Enforcement and Investigations Branch in Operations.

The placement of the information and intelligence function is not indicated in this graphic. As noted before, options for placement are:

- Command Staff Officer
- Planning Section Unit
- Operations Section Branch
- General Staff Section

Slide 12-18: Categories of Terrorist Incidents



IV. Terrorist Incident Operational Considerations (10 minutes)

Experts agree that there are five categories of terrorist incidents: Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE).

A. Biological

- Biological agents:
  - Contain living organisms;
  - Have an incubation period ranging from several hours to days, and in some cases, weeks; and
  - Are disseminated as solids, aerosols, or liquids.

B. Radiological and Nuclear

- Radiological and nuclear materials pose both an acute and long-term hazard to humans.
- A person's extent of risk depends on the dose of radiation he or she receives. Three types of exposure are:

- Whole body,
- Inhalation, and
- Ingestion.

- Protection against radiation exposure consists of time, distance, and shielding.

- Personal Protective Equipment (PPE) requirements for rescue depend on the type of radiation emitted, as follows:

  - Alpha (limited range and penetrating power): SCBA and turnouts sufficient;

  - Beta (more range and penetrating power than alpha): SCBA and Level A are insufficient. Quick in and out may be the only viable rescue option; and

  - Gamma (not a particle, but a ray with long-range and deep penetrating power): Limiting the duration of exposure is the only viable option.

C. Explosives

- The FBI reports that:

  - Public safety agencies alerted to the presence of a device have only a 20 percent chance of finding it;

* Hundreds of hoax bomb threats are reported each year; and

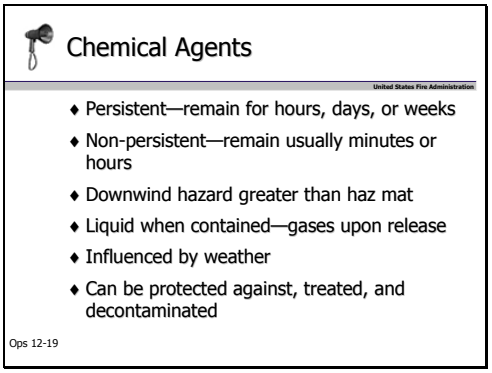
* Residential properties are the most common targets for bombers.

* Assume secondary devices are present at an incident.

- An associated hazard can be incendiary devices

  * If devices are discovered before ignition, only specially trained personnel should handle them. In addition, proper handling is critical for crime scene preservation.

Slide 12-19: Chemical Agents



D. Chemical

- Persistent agents (vapor, liquid, or dust) remain in the affected area for hours, days, or weeks.

- Non-persistent (primarily vapors) remain a hazard in the affected area for a shorter time, usually only minutes or hours.

- A downwind hazard is a greater risk than a typical haz mat incident.

- Chemical agents:

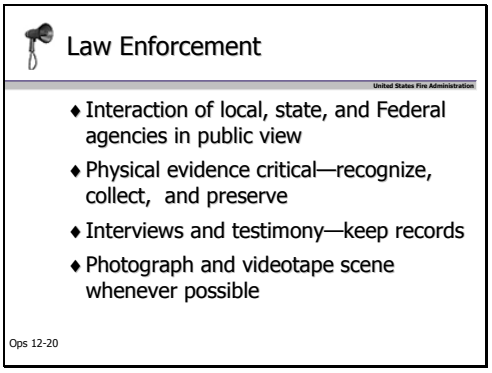
  * Are usually liquid when contained and become gases upon release;

* Are usually disseminated as vapors or as gases and will thus dissipate with time;

* Are influenced by weather conditions such as temperature, humidity, and wind; and

* Can be protected against, treated, and decontaminated.

Slide 12-20: Law Enforcement



V. Law Enforcement (10 minutes)

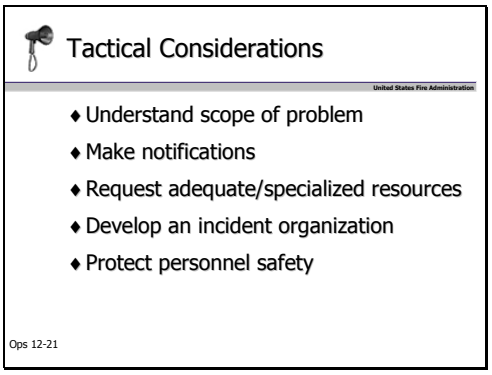
- Acts of terrorism are Federal crimes, and the interaction of local, state, and Federal agencies is very important both because of the complexity of a situation and public interest.

- Physical evidence may be critical to connecting the terrorist to a scene. Recognition, collection, and preservation of physical evidence may be the only means of identifying those responsible.

- Law enforcement may want to interview you. Because you may be required to testify in court, keep a record of your activities and observations on ICS Form 214.

- Use photographs and videotapes whenever possible to document the entire scene before moving any objects.

Slide 12-21: Tactical Considerations



VI. Tactical Considerations (25 minutes)

Tactical objectives are set in order to develop a plan with which to accomplish a goal. The following 10 basic tactical objectives show how we would approach resolving a situation.

- Understand the scope of the problem.

  Gather critical information about the incident. Identify the agent category as quickly as possible using available detection equipment.

- Make notifications.

  Early notification of the type and magnitude of the incident to the EOC, hospitals, and other medical facilities to warn of mass casualties and self-transported contaminated victims is critical.

- Request adequate/specialized resources.

- Develop an incident organization.

- Protect personnel safety:

  * Stay upwind, uphill, and upstream.

  * A safe distance from a chemical attack is a minimum of 300 feet (hot zone).

* Be aware of ventilation exhaust ports from the incident site such as from buildings and subways.

* Only responders wearing the proper protection should attempt victim rescue.

* Structural firefighting PPE can be compared to OSHA Level C protection and will protect against inhalation exposure, but only provides limited splash protection and no protection against skin absorption.

* Level C may provide adequate protection against airborne biological agents and some radiological materials.

* Only Level A protection is recommended for initial entry into a chemical agent hot zone until the actual agent and health risk are known. To adjust the level of protection, you need advanced detection equipment.

* Be alert for secondary devices.

* Always use proper PPE when coming in contact with a victim.

Slide 12-22: Tactical Considerations (continued)

- ∗ Be alert for signs and symptoms of agent exposure among responders.
- ∗ Follow up with medical assessments (after the incident) to ensure that response personnel have not been contaminated.

- Stabilize the incident.
  - ∗ Isolate the area:
    - – Establish hot, warm, and cold zones;
    - – Give specific verbal instructions and warn people of the dangers; and
  - ∗ Maintain crowd control.
  - ∗ Deny entry. (Realize that you may be unsuccessful.)
  - ∗ Cordon off the area to prevent people from entering or leaving.

- Protect the environment.

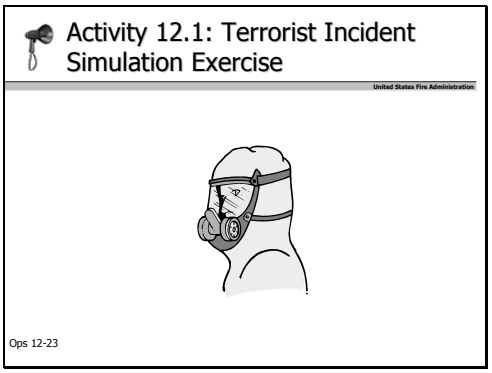
  Runoff may need to be contained (but don't delay decontamination of victims while doing so).

- Protect the crime scene.

  Every effort should be taken to preserve evidence that could be used to apprehend and prosecute the perpetrators later.

- Develop a written plan.
- Deal with the media.
  - Establish a good relationship immediately;
  - Strive to give them accurate and timely information; and
  - Think of the incident as an opportunity to educate the public.

Slide 12-23: Activity 12.1: Terrorist Incident Simulation Exercise



VII. Activity 12.1: Terrorist Incident Simulation Exercise (150 minutes)

Instructor Notes:

Refer students to Activity 12.1, Terrorist Incident Simulation Exercise, in their student manuals.

Activity 12.1:
Terrorist Incident Simulation Exercise

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a terrorist incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in the appendix), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups:**

   Each group will staff the positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Public Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. **Review the simulation rules:**

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control objectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will identify planning needs using the FOG Position Checklist: develop an alternate plan, collect and record info, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the times listed on each. The time in the upper right corner of each message indicates the

real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

You will play the role of various outside agency representatives and facilities management.

The roles played by an instructor should include:

Building Engineer—Report that the HVAC system was shut down by the fire alarm system. It does have an exhaust feature. Report that the fire pumps are operating at this time.
Police Supervisor—Make every effort to comply with assistance requests.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening, observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
- Planning Chief: Alternate plan

- Logistics Chief: Resource list
- Safety Officer: Safety message
- Public Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.
- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

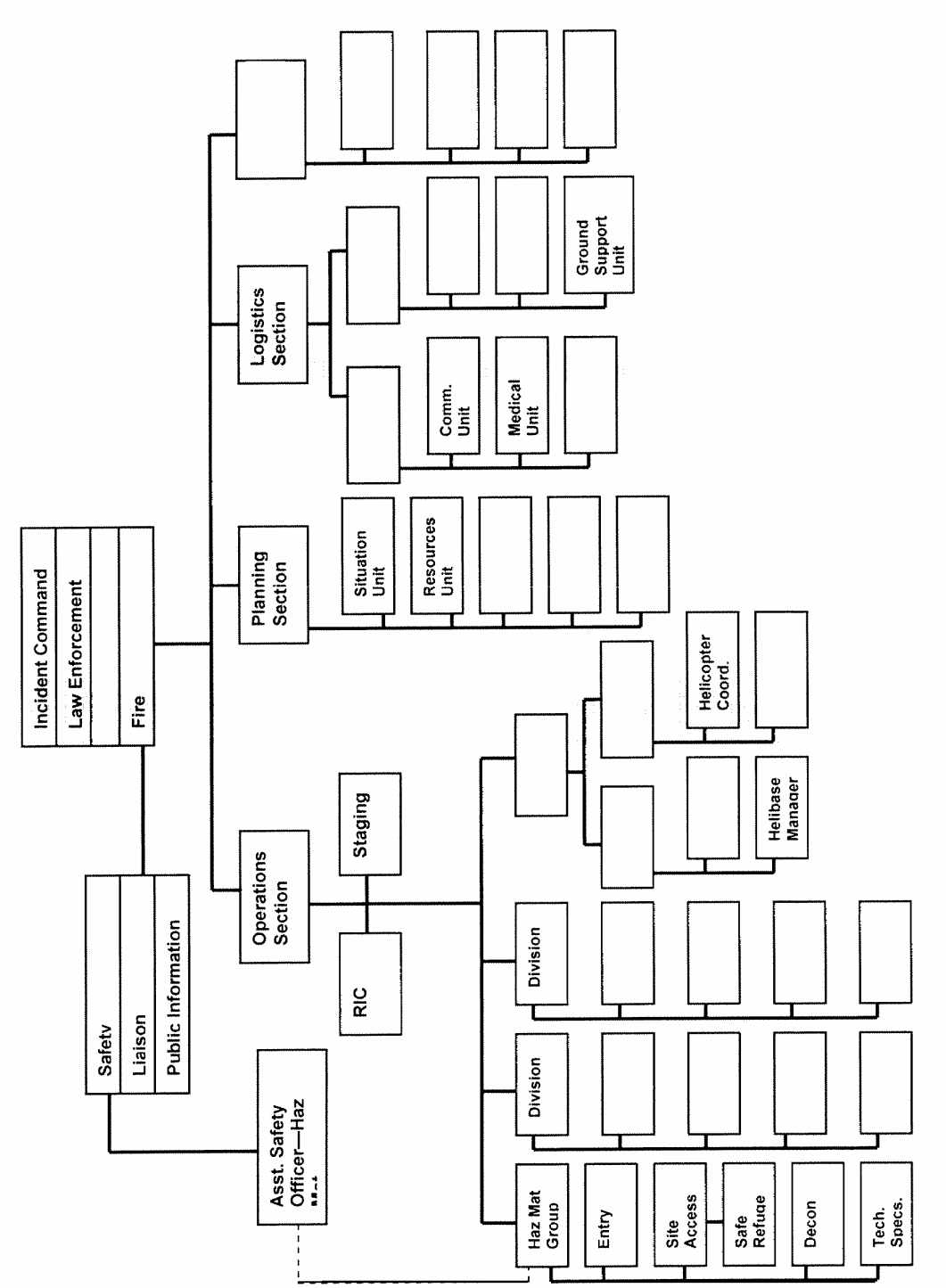
Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and discussing the following questions:

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?

- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

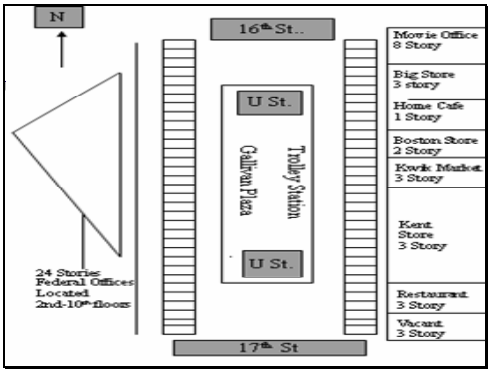
Sample Incident Organization: Terrorist Incident Simulation Exercise



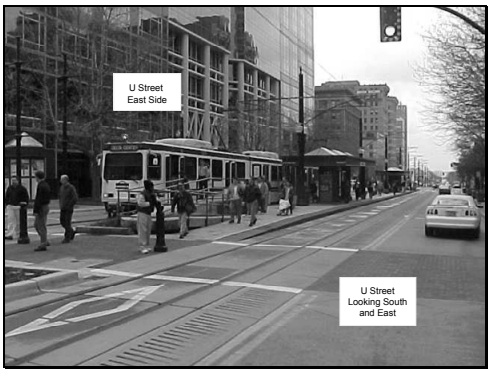
Terrorism Walk-Around

Slide 24-31: Plot/Plan Terrorist Incident

Slide 12-24



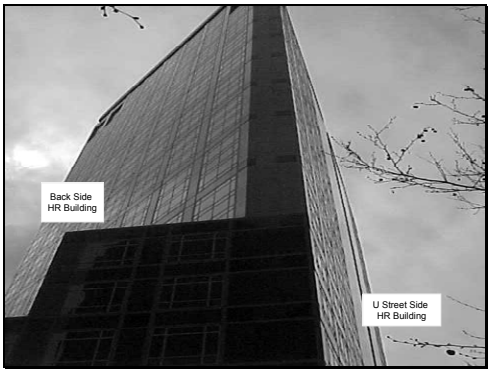
Slide 12-25



Slide 12-26

Slide 12-27

Slide 12-28



Slide 12-29

Slide 12-30

Slide 12-31

Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

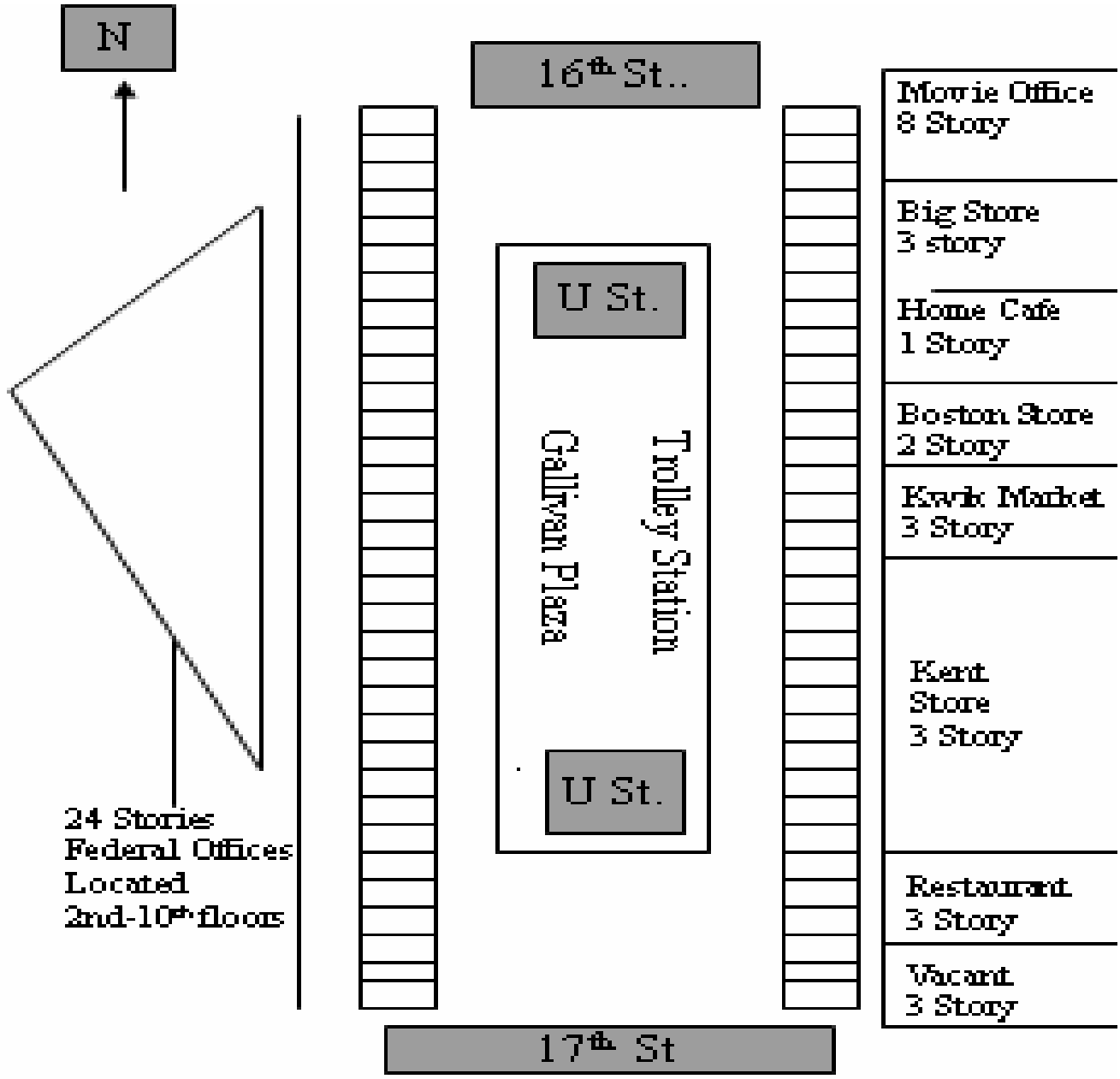
Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

Terrorist Incident

Plot Plan



Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card **Response time: 20 min.**

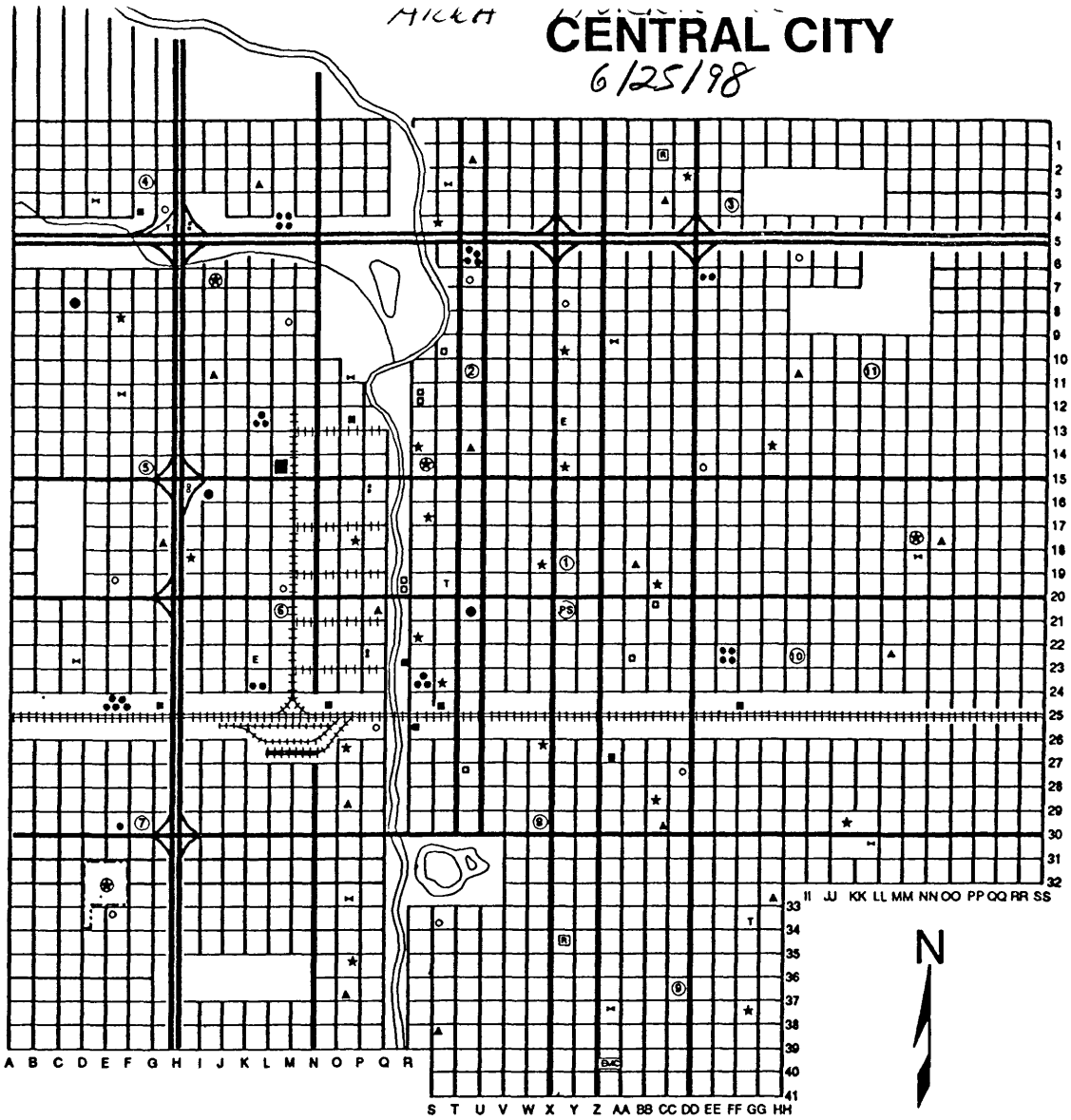
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

Instructor Notes:

These messages are examples of possible messages for the incident. You may need to adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 0830 hours**

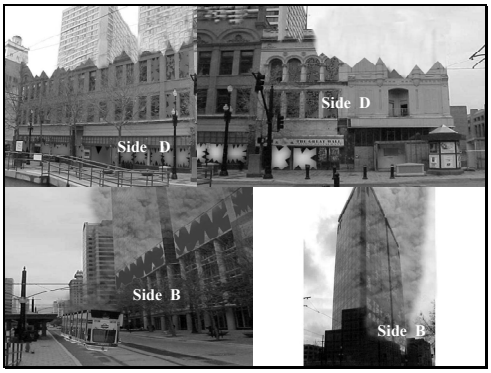
To: Battalion Chief 1

Message:

It is Wednesday, March 30. The temperature 50 degrees, and the wind is 5mph out of the west.

Engine 1 is on location at 17th and U Streets at Gallivan Plaza. It appears that an explosion has occurred near the passenger loading station on the east side of U Street. A trolley has overturned and is badly damaged.

Slide 12-32: Trolley and high-rise views



There is a large crater in the street. Many buildings on both sides of U Street have suffered extensive damage. Broken glass is strewn all over the area. Medium smoke is showing from the high-rise building.

There are many injured pedestrians and at least 20 victims trapped in the trolley. There are also reports of victims trapped in buildings on the west side of U Street.

Engine 1 has established Division B, U Street west side at the trolley area.

Engine 2 is establishing Division D, U Street east side.

Truck 1 is establishing an evacuation group for the high-rise building.

Squad 1 is establishing an extrication group for victims in trolley.

Rescue 3 and Ambulance 2 have established a medical group at 16th and U Streets.

MSU 6 has not been assigned.

Engine 1 has requested a second alarm.

Simulation Time: 00:00

SIMULATION MESSAGE

Message #2 **Incident Time: 0840 hours**

To: Battalion Chief 1

Message:

Evacuation group reports that floors 1 through 7 in the high-rise building have suffered extensive interior damage. A fire is reported in a 3rd floor office area. The building occupancy is nearly 2,000 people

Medium smoke showing from the 3rd floor of the high-rise building. Many windows have been broken in the high-rise. Need additional companies. Trying to evacuate the building.

Simulation Time: 00:10

SIMULATION MESSAGE

Message #3 **Incident Time: 0845 hours**

To: Battalion Chief 1/Central City IMT

Message:

Central City Incident Management Team has arrived on scene and will be briefed by Battalion Chief 1.

Second alarm companies are now in staging.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #4 **Incident Time: 0850 hours**

To: Operations/Logistics/Planning

Message:

Division D reports cornices atop the Kent building have collapsed onto the roof, collapsing the roof area. There is an undetermined number of victims trapped under the debris on the 3rd floor of the building. Need additional resources for extrication.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #5 **Incident Time: 0852 hours**

To: Operations/Safety/Logistics

Message:

Medical group supervisor reports they have established a casualty collection point at 16th and U Streets.

Presently, have 35 people for triage. Seven victims have been determined to be red trauma transports. Four additional victims with second- and third-degree burns.

Need additional ambulances and medical support. Many ambulatory victims have suffered severe lacerations from the falling glass.

Simulation Time: 00:22

SIMULATION MESSAGE

Message #6 **Incident Time: 0855 hours**

To: Operations/Liaison/Logistics

Message:

Maintenance superintendent from the high-rise building reports 50 occupants have suffered severe lacerations from the flying glass.

Furthermore, he reports that the fire on the 3rd floor is in a maintenance storage room not an office. He states that he has some flammable liquids and solvents stored in the room.

He also reports that the building is partially sprinkled, but the explosion has broken the piping from the 1st through 7th floors.

He reports that approximately 100 people occupy each floor.

Simulation Time: 00:25

SIMULATION MESSAGE

Message #7 **Incident Time: 0858 hours**

To: Operations/Logistics/Planning

Message:

Extrication group reports 14 victims still trapped in the trolley. Some are severely injured. Have removed six victims to the medical group. Four victims have no vitals. Two victims are suffering from third-degree burns of the arms, legs. May need a surgical team on the scene.

Simulation Time: 00:28

SIMULATION MESSAGE

Message #8 **Incident Time: 0903 hours**

To: Information/Incident Commander

Message:

Press and media have arrived on scene. They are requesting a live interview.

They have reports of a terrorist attack with many people killed. Prepare a written press release.

Simulation Time: 00:33

SIMULATION MESSAGE

Message #9 **Incident Time: 0904 hours**

To: Operations/Safety/Liaison

Message:

Extrication group reports a heavy odor of gas around the trolley area.

Simulation Time: 00:34

SIMULATION MESSAGE

Message #10 **Incident Time: 0908 hours**

To: Operations/Liaison/Logistics

Message:

Division D supervisor reports eight people are still trapped on the 3rd floor under the rubble of the collapsed roof. Need additional lifting equipment.

Furthermore, they report that they have removed six victims to the medical group. Most victims are suffering from neck and back injuries.

There is also a strong odor of gas in the building.

Simulation Time: 00:38

SIMULATION MESSAGE

Message #11 **Incident Time: 0911 hours**

To: Liaison/Logistics/Safety

Message:

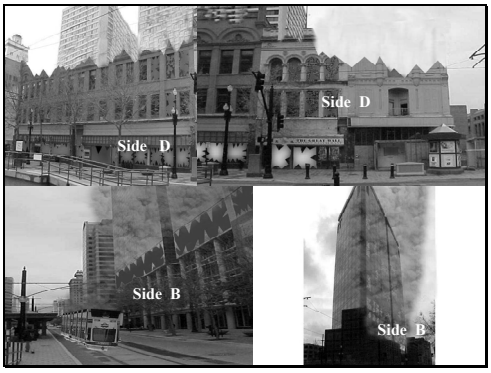
Trolley transportation officials recommend shoring up the crater to prevent further street collapse. Broken glass is continuing to fall from the upper floors of the high-rise.

Simulation Time: 00:41

SIMULATION MESSAGE

Message #12 **Incident Time: 0914 hours**

Slide 12-32: Trolley and high-rise views



To: Operations/Safety/Liaison

Message:

High-rise fire attack division supervisor reports all fire knocked down. Fire appears to be contained to the maintenance room on the 2nd floor. Checking for extension.

Medium smoke conditions still exist on the 2nd floor. Light smoke conditions on the upper floors.

Simulation Time: 00:44

SIMULATION MESSAGE

Message #13 **Incident Time: 0916 hours**

To: Incident Commander/Liaison/Planning

Message:

First FBI (JTTF member) agent has arrived on scene along with the Weapons of Mass Destruction (WMD) coordinator.

Agents are requesting a meeting with the IC and planning chiefs.

Simulation Time: 00:46

SIMULATION MESSAGE

Message #14 **Incident Time: 0920 hours**

To: Operations/Logistics/Information

Message:

Medical group supervisor reports they still have 40 victims needing hospital transportation.

Casualties include 28 red trauma transports, including 9 severe burn victims.

Also have 12 green and 4 black victims at this time.

Simulation Time: 00:50

SIMULATION MESSAGE

Message #15 **Incident Time: 0925 hours**

To: Operations/Logistics/Information

Message:

Division D supervisor reports they have extricated all the victims under the collapsed roof in the Kent building. They have sent five victims to the medical group. Report two victims DOA.

Simulation Time: 00:55

SIMULATION MESSAGE

Message #16 **Incident Time: 0930 hours**

To: Operations/Planning/Safety

Message:

Damage assessment group supervisor reports damage to other buildings on Side D is significant. Recommends not entering any buildings at this time, except for rescue, then only with caution.

Simulation Time: 00:60

SIMULATION MESSAGE

Message #17 **Incident Time: 0935 hours**

To: Operations/Safety/Logistics

Message:

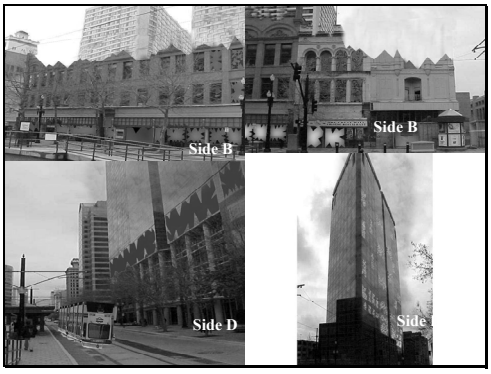
Division D supervisor reports a secondary collapse in the Kent building, 3rd floor. Two firefighters injured.

Simulation Time: 01:05

SIMULATION MESSAGE

Message #18 **Incident Time: 0937 hours**

Slide 12-33: Trolley and high-rise views



To: Operations/Safety/Information

Message:

High-rise fire attack division supervisor reports no further extension of fire. Light smoke on 2nd floor. Very light smoke on upper floors.

Simulation Time: 01:07

SIMULATION MESSAGE

Message #19 **Incident Time: 0938 hours**

To: Operations/Planning/Logistics

Message:

Evacuation group reports approximately 2,200 people have been evacuated from the high-rise building.

Simulation Time: 01:08

SIMULATION MESSAGE

Message #20 **Incident Time: 0940 hours**

To: Incident Commander

Message:

Simulation complete. Take 10 minutes to recap activities.

Simulation Time: 01:10

SIMULATION MESSAGE

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Debrief: Terrorist Incident		
Function	**Message # 1**	**Message # 4**
Command	Perform size-up, establish strategy, develop ICS structure. Monitor progress and evaluate strategy.	Perform size-up, establish strategy, develop ICS structure. Monitor progress and evaluate strategy. Consider adjusting strategy.
Safety	Consider structural integrity. Enforce safe corridors of operation.	Consider structural integrity. Enforce safe corridors of operation. Address FF accountability.
Liaison	Identify personal contacts.	Communicate on building occupant accountability. Communicate on traffic control.
Information	Gather incident information.	Gather incident information.
Operations	Deploy companies. Define tactics. Establish fire/EMS ICS operational structure.	Deploy companies. Support medical branch operations. Maintain active communication with companies. Evaluate progress.
Planning	Predict incident progress. Predict resource needs.	Modify action plan to met changing situation. Maintain situation and resource status records.
Logistics	Anticipate breathing air needs.	Anticipate breathing needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims).
Administration/Finance		

Simulation Debrief: Terrorist Incident		
Function	**Message # 6**	**Message # 10**
Command	Monitor progress and evaluate strategy. Consider adjusting strategy.	Support operations' requests for resources.
Safety	Confront tactical safety. Review special consideration (type of structure/contents/equipment/use).	Review special considerations (type of structure/contents/equipment/use).
Liaison	Maintain communication with agencies. Communicate on building occupant accountability.	Communicate on building occupant accountability. Communicate on rest and rehab areas. Communicate with gas company.
Information	Gather information. Establish media staging area.	Prepare information release.
Operations	Maintain active communication with companies. Request special medical resources. Evaluate progress of operations.	Deploy companies.
Planning	Maintain situation and resource status records. Work with technical specialists.	Predict resource needs. Consider gas leak potential.
Logistics	Anticipate breathing air needs. Anticipate EME requirements for triage, treatment, transport (FF and victims). Establish facilities and support for relocation and shelters.	Anticipate EMS requirements for triage, treatment, transport (FF and victims). Manage command post area/vehicle.
Administration/Finance		

Simulation Debrief: Terrorist Incident		
Function	**Message # 13**	**Message # 16**
Command	Support operations' requests for resources. Establish FBI in unified command.	Support operations' requests for resources.
Safety	Consider structural integrity. Enforce safe corridors of operation. Confront tactical safety.	Consider structural integrity. Address FF accountability. Confront tactical safety. Review special considerations (type or structure/contents/equipment/use).
Liaison	Maintain communication with agencies. Communicate on building occupant accountability.	Maintain communication with agencies.
Information	Conduct press briefing.	Maintain media contacts.
Operations	Deploy companies. Adjust tactics. Evaluate progress of operations.	Deploy companies. Define tactics. Maintain active communication with companies. Reinforce safety issues.
Planning	Predict incident progress. Brief WMD coordinator. Maintain situation and resource status records.	Modify action plan to meet changing situation. Maintain situation and resource status records.
Logistics	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims). Consider additional shoring needs.	Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish support for incident supplies, for example, batteries, radios, tools, and lighting.
Administration/Finance	Track all costs. Document injuries and deaths.	Document injuries and deaths.

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	

Major Hazards and Risks:

Narrative:

Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Press Questions

There are reports of a terrorist attack with many people killed. What is the current situation?

_____

_____

_____

_____

Have there been any deaths reported?

_____

_____

How many people have been injured?

_____

_____

Activity 12.1:

Terrorist Incident Simulation Exercise

Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a terrorist incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (a second Aide designated for groups with more than 10)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Public Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Public Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

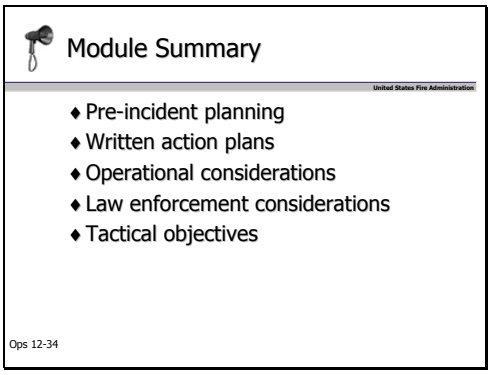
Activity 12.1:
Terrorist Incident Simulation Exercise
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Slide 12-34: Module Summary



VIII. Module Summary (10 minutes)

- Success in managing a terrorist incident relies on the level of preparedness that a community has established before an incident.
- Written action plans are critical for effective incident operations.
- Preparing for operations for terrorist incidents includes understanding chemical agents, biological agents, radiological and nuclear devices, and explosives.
- Law enforcement considerations include preserving evidence, recording activities, and documenting the scene.
- Effective tactics accomplish goals. We covered the following 10 tactical objectives for resolving a terrorist incident:
  - Understanding the scope of the problem;
  - Making early notifications;
  - Requesting adequate resources;
  - Developing an incident organization;
  - Protecting personnel safety;

* Stabilizing the incident;
* Protecting the environment;
* Protecting the crime scene;
* Developing a written plan; and
* Dealing effectively with the media.

MODULE 12

APPENDIX

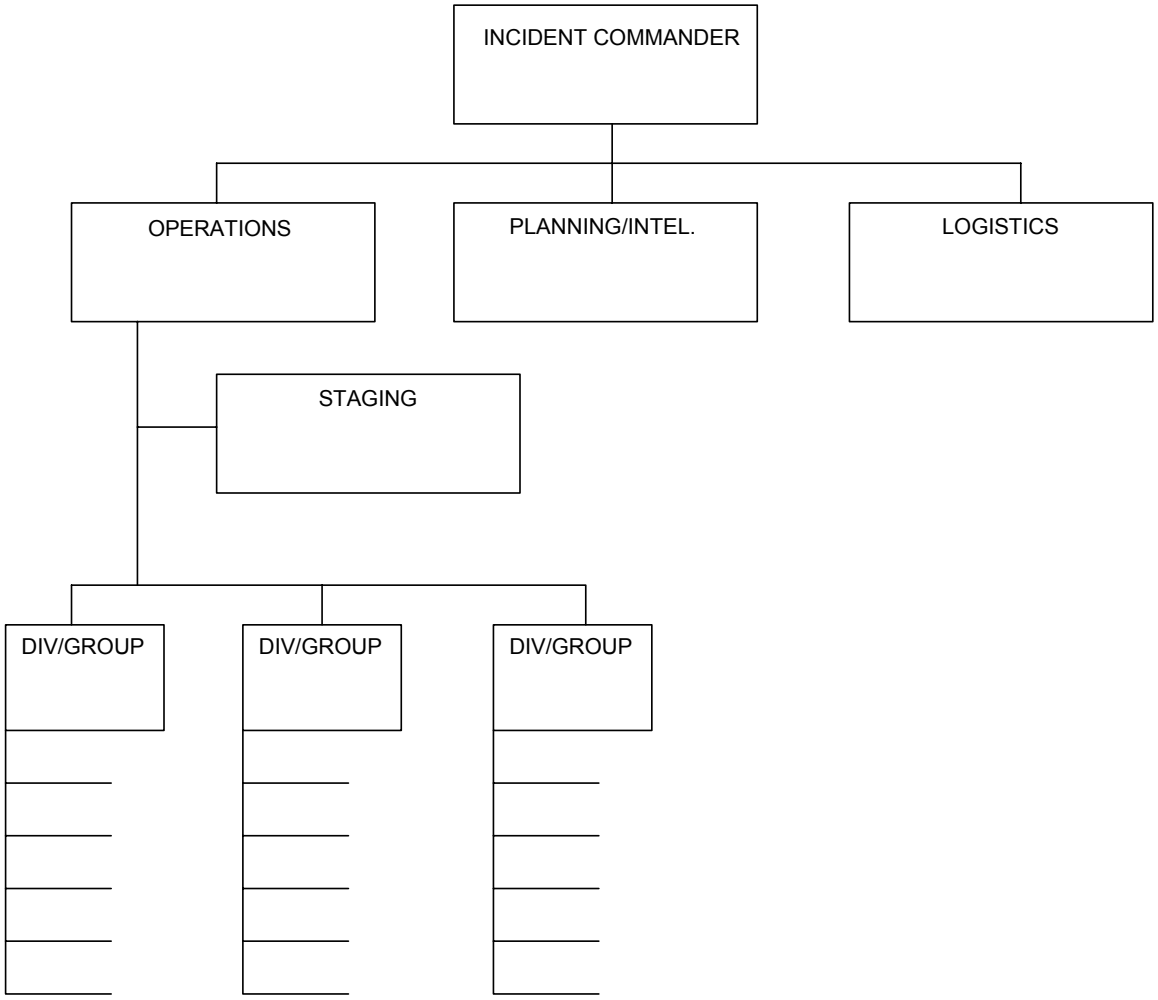
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

MODULE 13

ENCLOSED MALL SIMULATION EXERCISE

MODULE 13:

ENCLOSED MALL SIMULATION EXERCISE

Terminal Objective

Upon completing this module, students will be able to effectively manage an incident at an enclosed mall.

Enabling Objectives

Students will:

- Identify structural characteristics of enclosed malls;
- Identify safety considerations associated with enclosed mall incidents;
- Establish incident objectives;
- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer
- LCD projector

- One portable screen or classroom equipped with screen
- Chalkboard/wipeboard
- Easel pads with markers
- Command Worksheets (may use local fire department worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than “normal” first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who makes command level decisions based on strategic objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities. Some of these hazards are significant and are known as target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

Expanded Written Incident Action Plan

This course is designed for battalion chief level officers operating at target hazard incidents that usually do not extend over several operational periods.

However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

The instructor should carefully read both the instructor guide and the student manual and become familiar with the content before presenting the course.

The module combines a lecture and simulation exercise for an enclosed mall. Ensure that students understand the management needs, cues, and ICS organization structure needed at enclosed mall incidents.

Methodology

This module uses lecture, discussion, and a simulation exercise.

Outline

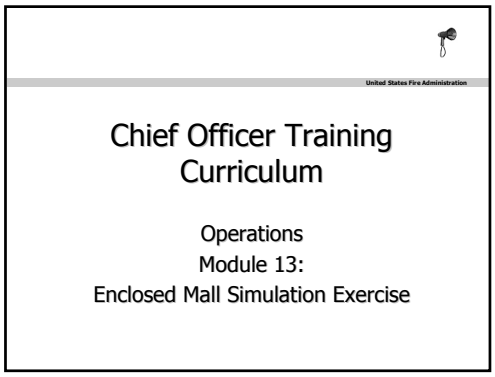
I. Objectives and Overview ..... 5 minutes
II. Enclosed Mall Structure ..... 20 minutes
III. Location ..... 5 minutes
IV. Internal Fire Protection Systems ..... 5 minutes
V. Fire Detection and 911 Calls for Assistance ..... 5 minutes
VI. Pre-Incident Planning ..... 10 minutes
VII. Incident Considerations ..... 20 minutes
VIII. Activity 13.1: Enclosed Mall Simulation Exercise ..... 165 minutes
IX. Module Summary ..... 5 minutes

240 minutes

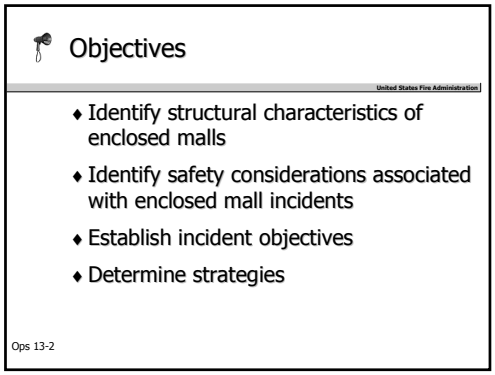
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

Slide 13-1: Module 13, Enclosed Mall Simulation Exercise



Slide 13-2: Objectives



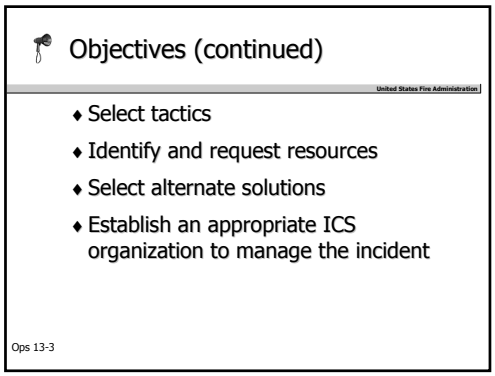
I. Objectives and Overview (5 minutes)

A. Objectives

Students will be asked to:

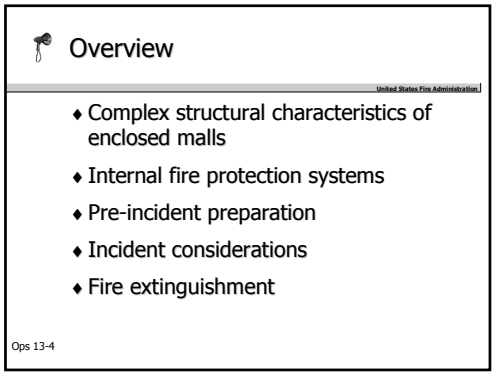
- Identify structural characteristics of enclosed malls;
- Identify safety considerations associated with enclosed mall incidents;
- Establish incident objectives;
- Determine strategies;

Slide 13-3: Objectives (continued)



- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Slide 13-4: Overview

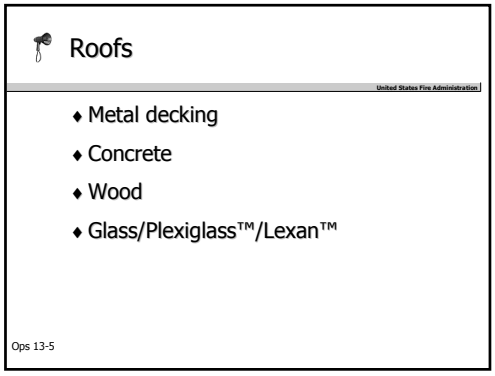


B. Overview

In this module, we will discuss:

- The structural characteristics of enclosed malls;
- Internal fire protection systems in enclosed malls;
- Pre-incident preparation for enclosed malls;
- Incident considerations; and
- Fire extinguishment.

Slide 13-5: Roofs



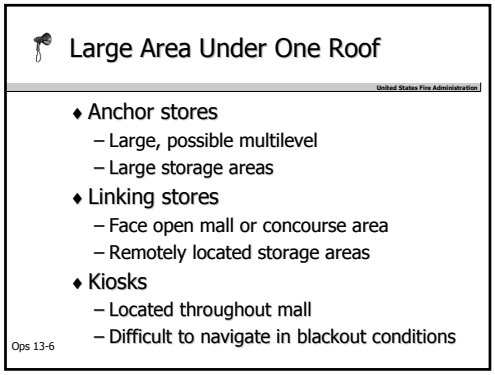
II. Enclosed Mall Structure (20 minutes)

A. Basic designs

- Open mall;
- Enclosed mall;
- Converted open mall to enclosed mall (ensure that old mall is brought up to current building code standards);
- Roofs:
  - Metal decking (most common),
  - Concrete,
  - Wood, and
  - Glass/Plexiglas™/Lexan™.
- Enclosed malls with a high-rise structure attached:
  - May include hotels, office buildings, or a combination of both;
  - High-rise structures that open directly into the mall, creating a significant exposure problem—especially with respect to smoke prorogation; and

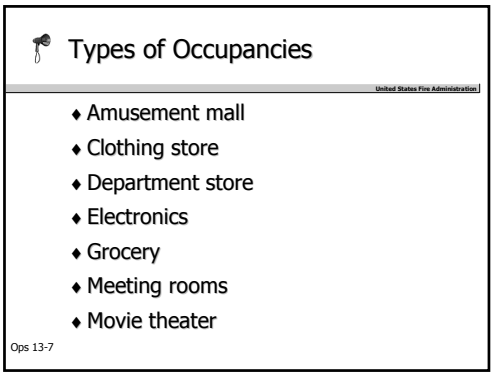
* Numerous ventilators, skylights, and HVAC units (Roof surveys and preplans should indicate what occupancies these units serve).

Slide 13-6: Large Area Under One Roof



- Large area under roof:
  * Anchor stores are:
    – Major, usually chain stores, such as Sears (There may be one to six anchors in a single mall); and
    – Large mercantile (possibly multilevel) occupancies that may have their own fire alarm, fire suppression, and/or fire detection systems, and may also contain large storage areas with the potential to confuse and trap firefighters.
  * Linking stores are:
    – Specialty stores facing an open mall or concourse that connects the anchor stores (and may contain storage areas that may be remotely located in large, maze-like storage rooms located in the lower levels or to the rear of the mall).

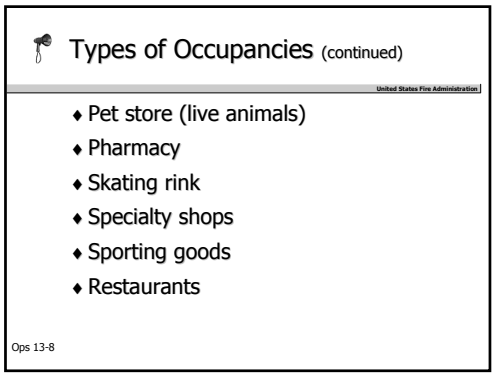
Slide 13-7: Types of Occupancies



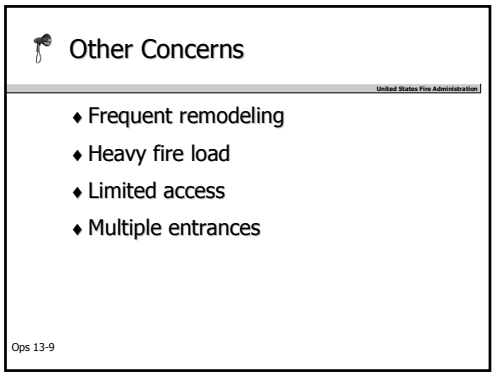
* Kiosks are:
  - Small booths usually located throughout the mall in the concourse or pedestrian traffic areas; and
  - Can be difficult to navigate in blackout conditions).

- Many different types of occupancies may be under common roof, such as:
  * Amusement areas (must be inspected for life and fire safety at least annually),
  * Clothing stores,
  * Department stores,
  * Electronics stores,
  * Grocery stores,
  * Meeting rooms,
  * Movie theaters (long egress corridors and access hallways may confuse and trap firefighters during fire or power loss situations),

Slide 13-8: Types of Occupancies (continued)



Slide 13-9: Other Concerns



* Pet stores,
* Pharmacies,
* Skating rinks,
* Specialty shops,
* Sporting goods stores, and
* Restaurants, which have been responsible for fires that enter the cockloft area and cause significant fire extension.

B. Frequent remodeling

- Remodeling may breach firewalls.
- Remodeling may involve second or third dropped ceilings.
- Consider assigning a single inspector to monitor site during construction to ensure that fire suppression, detection, and alarm systems remain in service. (Access, fire loading, and use of hazardous materials, such as flammable and caustic substances, must be controlled.)

C. Heavy fire load

- There is significant fire loading, especially during peak buying periods.

- Major building codes require that columns, beams, and floor/ceiling systems be protected by most building codes. (Protection can range from 1 hour to3 hours depending on the code in force.)

- Open ceilings, common lofts:

  * May contain significant fire loading (for example, fiber optic wiring, computer access cable, and electrical wiring);

  * May allow rapid, undetected fire spread;

  * Require effective search for fire; and

  * May not be protected by sprinklers.

- Store partitions may not penetrate the ceiling or reach the underside of the roof. (One must determine the existence and location of fire walls or fire separations and note such on preplan).

- Display equipment may be fully or partially composed of extremely combustible materials and/or block sprinkler cone spray coverage.

- There is a large variety of Class A-type combustibles.

- Consider restaurant cooking facilities.

- The heavy fire load includes oil and gas used for heating, and cooking.

- Automobiles and other combustible materials may be on display in mall concourse.

D. Limited access

- Traffic lanes and congestion reduce response time.

- Locked mall entrances increase access time to occupancy. (Must be coordinated with mall security. Some fire alarm systems will automatically unlock exterior doors when activated.)

- Locked store entrances limit access, such as:

  * Single door and

  * Roll down gates.

- Fire lane requirements are difficult to enforce and maintain.

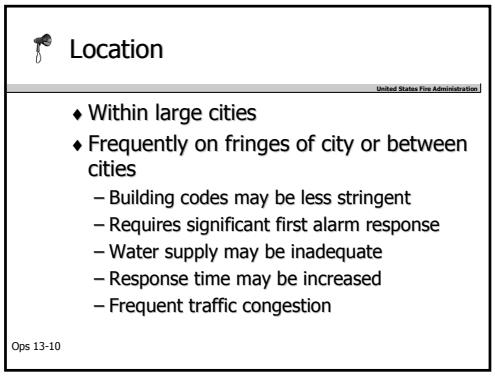
E. Multiple entrances

- Large openings serve as an excellent means for access and evacuation.

- Communications regarding entrances must be specific.

- It is strongly recommended that local fire departments devise a unique marking system to identify each of the many mall entrances with numbers or letters, if not already identified by mall management.

Slide 13-10: Location



III. Location (5 minutes)

- Malls are located within large cities or

- Frequently on the fringes of the city or between cities, where:

  * Building codes may be less strict;

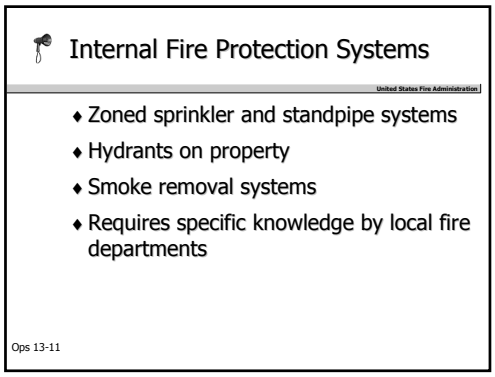
  * Significant first alarm response is required to provide rapid search, size up, and initial operations;

  * The water supply may be inadequate;

  * Response time may be increased; and

  * Traffic congestion may be a regular occurrence.

Slide 13-11: Internal Fire Protection Systems



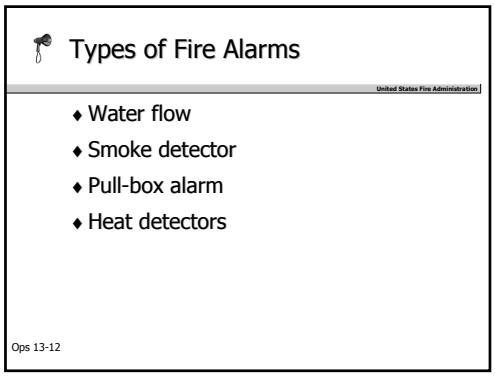
IV. Internal Fire Protection Systems (5 minutes)

- Zoned sprinkler and standpipe systems, with shut-off valves located significant distances from grid served;
- Hydrants on property:
  - Are these hydrants on the same main that supplies the sprinkler system?
  - Is there a fire loop around the mall that supplies the fire suppression system?
- Smoke removal systems;
- Internal fire protection systems require specific knowledge and documentation in preplans by local fire departments; and
- First alarm companies must be pre-assigned to proper standpipe and sprinkler connections.

V. Fire Detection and 911 Calls for Assistance (5 minutes)

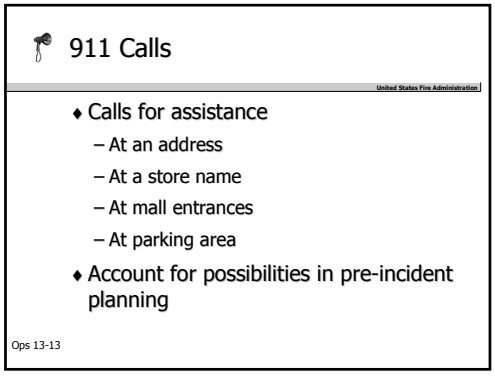
- The fire department may receive calls for assistance by numerous means. Alarm systems, cell phone calls, and landline requests for assistance are all possible.

Slide 13-12: Types of Fire Alarms



- There are several types of fire alarm and detection systems and methods of transmission to the fire department:
  - Water flow as reported by sprinkler zones;
  - Smoke detectors as reported in separate smoke detector zones, which may be tied to HVAC systems;
  - Pull-box fire alarms, which may be reported by pull-box stations or in separate zones;
  - Heat detectors in kitchens of restaurants; and
  - Small, dry chemical, CO_2, or other suppression system activation, which may trip a separate alarm.

Slide 13-13: 911 Calls



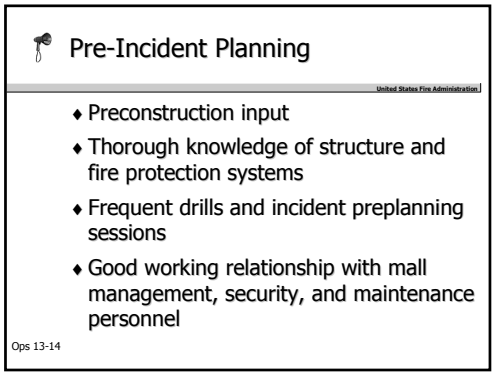
- There are many types of calls for assistance which may be characterized as follows:
  - A call for assistance at an address, for example, “12,811 Jones Branch Road”;
  - A call for assistance at a store name, for example, “At Smith’s Shoe Store, a woman has been injured”;
  - Calls for assistance at mall

entrances, for example, "At the number 2 entrance, an automobile is out front on fire"; and

* Calls for assistance by parking area, for example, "At the south-parking garage, a pedestrian has been struck."

- All of the above possibilities must be accounted for in pre-incident planning.

Slide 13-14: Pre-Incident Planning



VI. Pre-Incident Planning (10 minutes)

- Pre-construction input—The best type of preplanning for enclosed malls is participation in the planning and construction phases of the project (to ensure adequate water supply, fire department access, and life safety considerations).

- Obtain a thorough knowledge of the structure and fire protection systems.

- Conduct frequent drills and incident preplanning sessions.

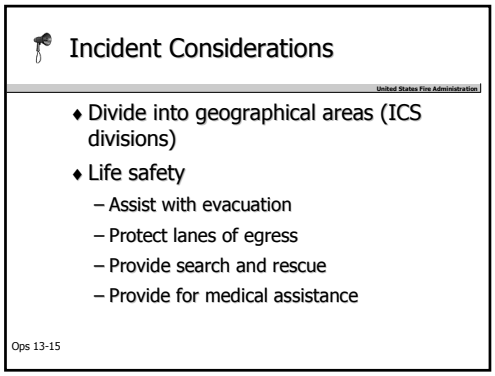
- Establish good working relationships with mall management, security, and maintenance personnel.

- Keep up with store names. (Many mall management companies

notify the water department, power company, realtors, and others of changes in rental occupants through email. One possible answer is to have your preplan officer added to the mall notification tree.)

- Make use of old or used rescue rope marked at 50-foot intervals to estimate the length of hose line necessary from standpipe outlets or from engines to potential fire locations.

Slide 13-15: Incident Considerations



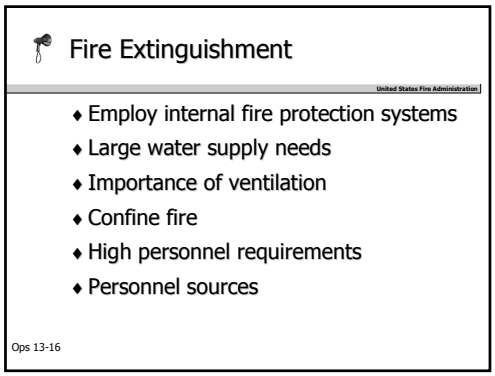
VII. Incident Considerations (20 minutes)

A. Divide the building into geographic areas—inside, outside, and on the roof—for all operations.

B. Life safety:

- Firefighters must be instructed to make use of tether lines or hose lines when entering large, open areas or the confusing, maze-like hallways found in malls.
- Assist with evacuation.
- Protect lanes of egress.
- Provide search and rescue. (The large areas and configuration of a mall require larger search teams than for other occupancies.)
- Provide for medical assistance.

Slide 13-16: Fire Extinguishment



C. Fire extinguishment

- Employ internal fire protection systems:
  - First, water should go to sprinklers.
  - Know sprinkler/standpipe locations and zones.
- Large water supply needs:
  - A long attack line stretches 300 to 500 feet. (A single attack line will probably require personnel from more than one engine company.):
    - In some cases, it may be more advantageous to extend attack lines through the closest entrance to the fire rather than make use of horizontal standpipes (should be noted on preplan).
    - This may require a search within the structure before committing the initial handline.
  - Consider master streams inside structure when required.
  - To avoid opposing streams, delegate fire attack

responsibilities out to branches and divisions with specific direction included in the incident action plan.

- Importance of ventilation:
  - Horizontal (some roofs may be difficult to breach);
  - Mechanical roof openings, such as:
    - Skylights and
    - Ventilators;
  - Dangers of rooftop work, such as:
    - False fronts,
    - Hidden drop-offs,
    - Heavy equipment (for example, HVAC, generators, and signs), and
    - Wires (including electrical).
  - Take advantage of HVAC system. It may be possible to regulate air supply to evacuate smoke from involved areas of the mall and reduce smoke advancement into uninvolved areas of the mall. Preplan with building engineer.

- Confine fire:
  - Fire will usually spread from the store of origin to the mall area.
  - Fire can spread in two or more directions after reaching the mall area.
  - Key areas include front, rear, flanks, and roof.
  - Consider making use of HVAC to control fire spread. If not possible, shut down HVAC as soon as possible.
- Fire extinguishment:
  - Support private fire suppression systems.
  - Confirm location of fire in mall by the read out on the alarm panel.
  - Assign resources to strategic locations and establish ICS.
  - Cover flanks and monitor cockloft for possible fire spread.
  - Determine fire flow requirements.
  - Provide sufficient initial

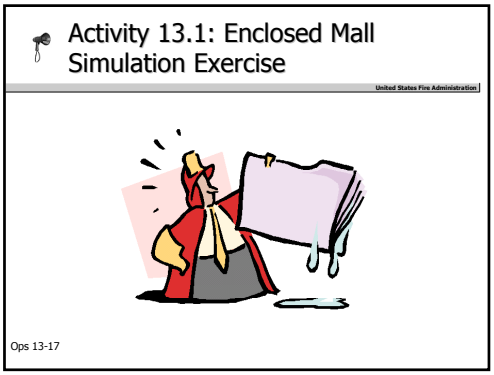
personnel, forcible entry resources, ventilation, and relief personnel.

- High personnel requirements:
  - Search and rescue;
  - Water management;
  - Fire attack;
  - Ventilation (A ventilation group or roof division may be an entire single-alarm assignment.);
  - Salvage (Large merchandise value necessitates that effective salvage efforts be started as soon as is practical.);
  - Preplan locations of floor drains to remove potentially large amounts of water resulting from sprinkler activation; and
  - Consider using mall water vacuums, from mall maintenance that may be available.
- Personnel sources:
  - Multiple alarms,
  - Mutual aid,

* Preplanned automatic aid with other departments, and

* Use of ICS.

Slide 13-17: Activity 13.1: Enclosed Mall Simulation Exercise



VIII. Activity 13.1: Enclosed Mall Simulation Exercise (165 minutes)

Instructor Notes:

Refer students to Activity 13.1, Enclosed Mall Simulation Exercise, in their student manuals.

Activity 13.1:

Enclosed Mall Simulation Exercise

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage an enclosed mall incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in the appendix), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups:**

   Each group will staff the positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. **Review the simulation rules:**

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control oObjectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will ID planning needs using the FOG Position Checklist: develop an alternate plan, collect and record information, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the times listed on each. The time in the upper right corner of each message indicates the

real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening, observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
- Planning Chief: Alternate plan
- Logistics Chief: Resource list
- Safety Officer: Safety message
- Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.

- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and discussing the following questions:

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- Discuss actions in response to these cues:

- Initial company reports,
- Persons trapped,
- Smoke and fire conditions,
- Security,
- Crowds and traffic,
- Time of day and day of year,
- Building size and type,
- Building contents,
- Life load,
- Transfer of command,
- Internal fire protection,
- Smoke density change,
- Low water pressure,
- Media arrival,
- Fire extension,
- Power company arrival,
- Injured civilians,
- Injured firefighters,
- Completion of primary search,
- Fire extinguishment,
- Building loading, and
- Effect of water of building components.

- How did your actions differ from the actions in the matrix? Why did they differ?

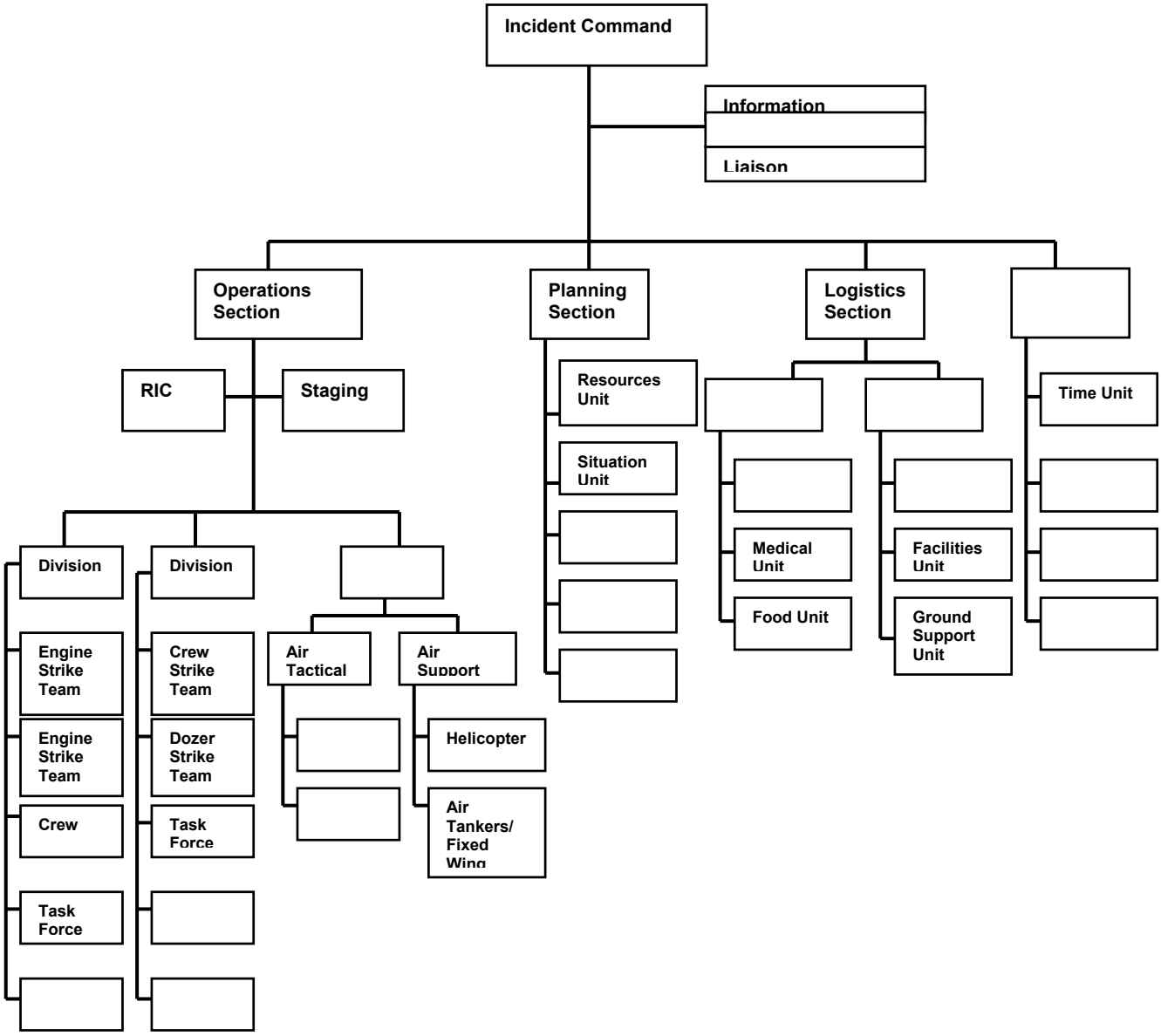
- What are your strengths and weaknesses in working on an IMT for this incident?

- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?

- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Sample Incident Organization

Enclosed Mall Simulation Exercise



Incident overview:

The incident occurs in Columbia Mall, a large structure with more than 2.1 million square feet of space under roof. Built in 1980's, the building includes 5 major department stores and over 196 assorted specialty shops and restaurants. Construction is concrete block covered by a bar joist, flat pan roof. The entire mall is equipped with sprinklers, with the heads mounted below the drop ceiling. Access to the facility can be made from two roads (south and north) into the 7,500-car parking lot, which surrounds the building. There are three parking garages, one on the north and two on the south sides of the complex. Fire apparatus cannot enter the raised portions of the parking garages.

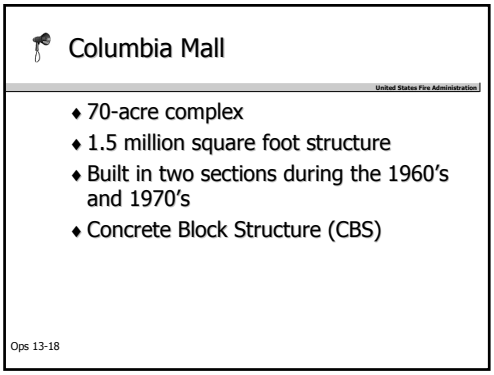
The alarm sounds just before 1400 hours on the Friday after Thanksgiving. The mall has been heavily patronized since it opened at 0900. Virtually all parking places are occupied with some cars parked on grassy areas at the perimeters of the parking lot. Outside temperature is 76°F (24.4°C) with an east wind of 10 mph.

Mall maintenance and the Central City Gas Company have been working on a reported minor gas odor at Entrance 4 all morning. An explosion occurs in the egress hallway of Entrance 4 on the south side of the complex, on the lower level. The fire that is triggered extends into the Miaro Bistro and down the hallway towards the main east-west mall concourse where it spreads to stores on the south side of that corridor. The sprinkler system in the egress corridor area has been damaged, making it inoperable in that section. All stores have been overstocked for the holiday shopping season, so the fuel load is high.

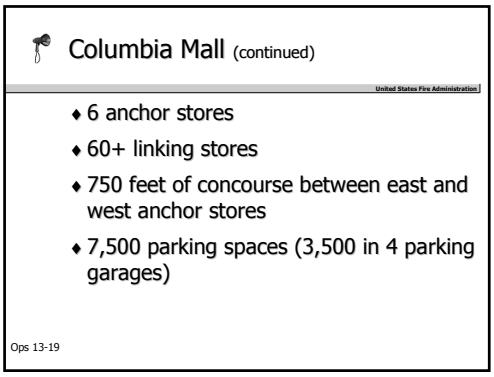
Instructor Notes:

The size and complexity of the structure, large fire area, and heavy life risk should lead to the most extensive command structure among course simulations. Although the sprinkler system eventually will hold the fire, misleading information from security could lead the commander to underestimate the firefighting response. Large crowds of people leaving the mall while fire companies are entering, an overcrowded parking lot with restricted access, and the need for extensive mutual-aid support add to command problems.

Slide 13-18: Columbia Mall



Slide 13-19: Columbia Mall (continued)



Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

Enclosed Mall

Quick Access Prefire Plan

Building Address: *1000 Columbia Avenue (Route 50)*

Building Description:

Shopping Mall 2.1 million square feet
Two and three stories, portions built in 1980's
CBS--5 major dept. stores, 196 shops and restaurants

Roof Construction:

Bar joist flat pan--Lexan™ skylight length of center mall

Floor Construction:

Concrete, covered by ceramic tile/carpet

Occupancy Type:	**Initial Resources Required:**
Shopping center	*One commercial bldg. alarm*

Hazards to Personnel:

Ingress, egress, horizontal interior hose lays

Location of Water Supply:	**Available Flow:**
Hydrants on site (10) 12-inch main	*1,600-gpm per hydrant*

	Estimated Fire Flow			
Level of Involvement	1 store	3-5	Dept. Store	Wing
Estimated Fire Flow	500 gpm	1,000 gpm	3 - 5,000 gpm	5,000 gpm

Fire Behavior Prediction:

Horizontal spread, common ceiling between stores.

Predicted Strategies:

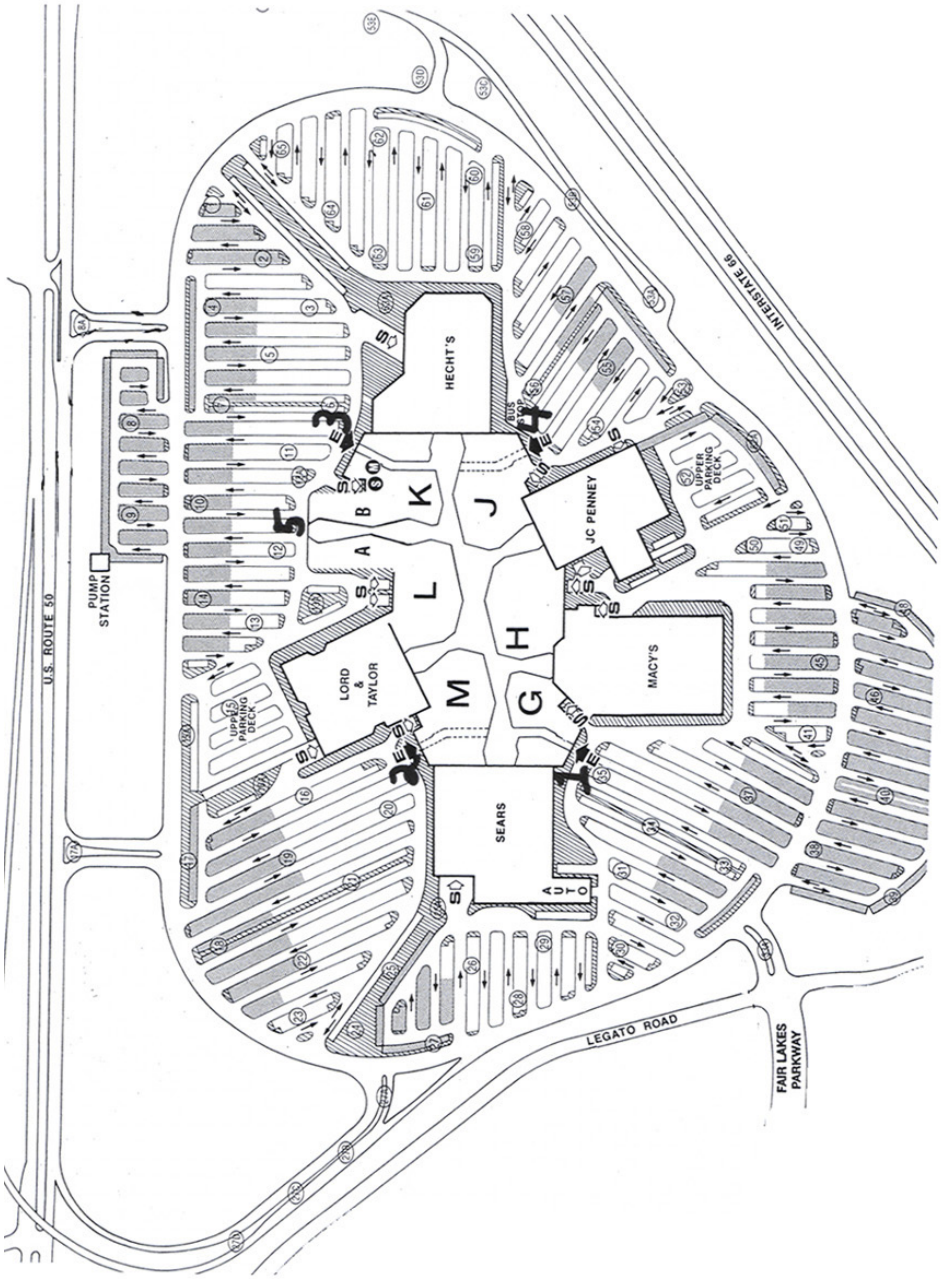
Rescue (primary search), confinement, ventilation.

Problems Anticipated:

Access to fire, occupants, zoned sprinklers, and long hose lays.

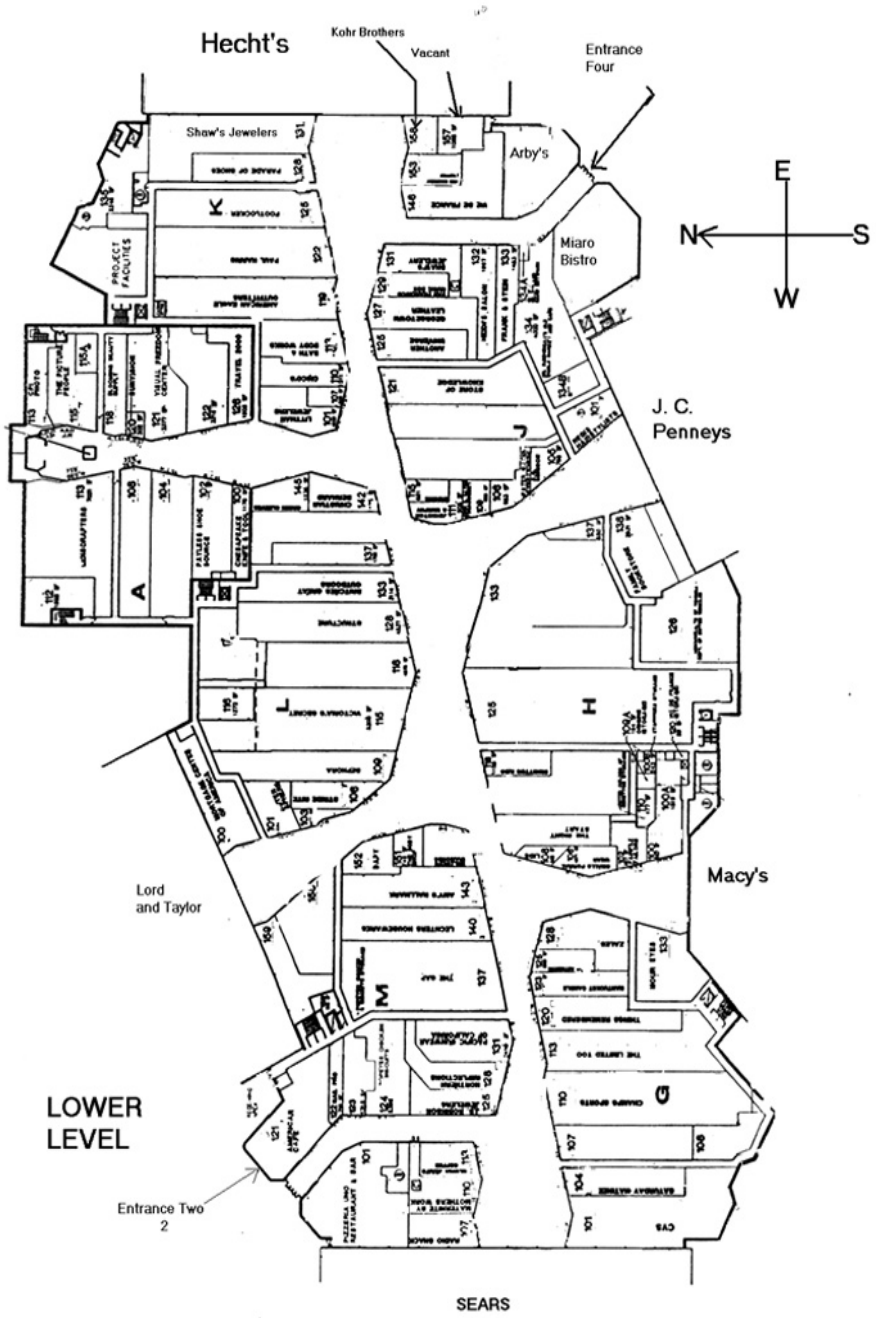
☒ **Standpipe:**	☒ **Sprinklers:**	☒ **Fire Detection:**
Horizontal	Zoned	**Smoke, water flow, heat detection**

Enclosed Mall Plot Plan



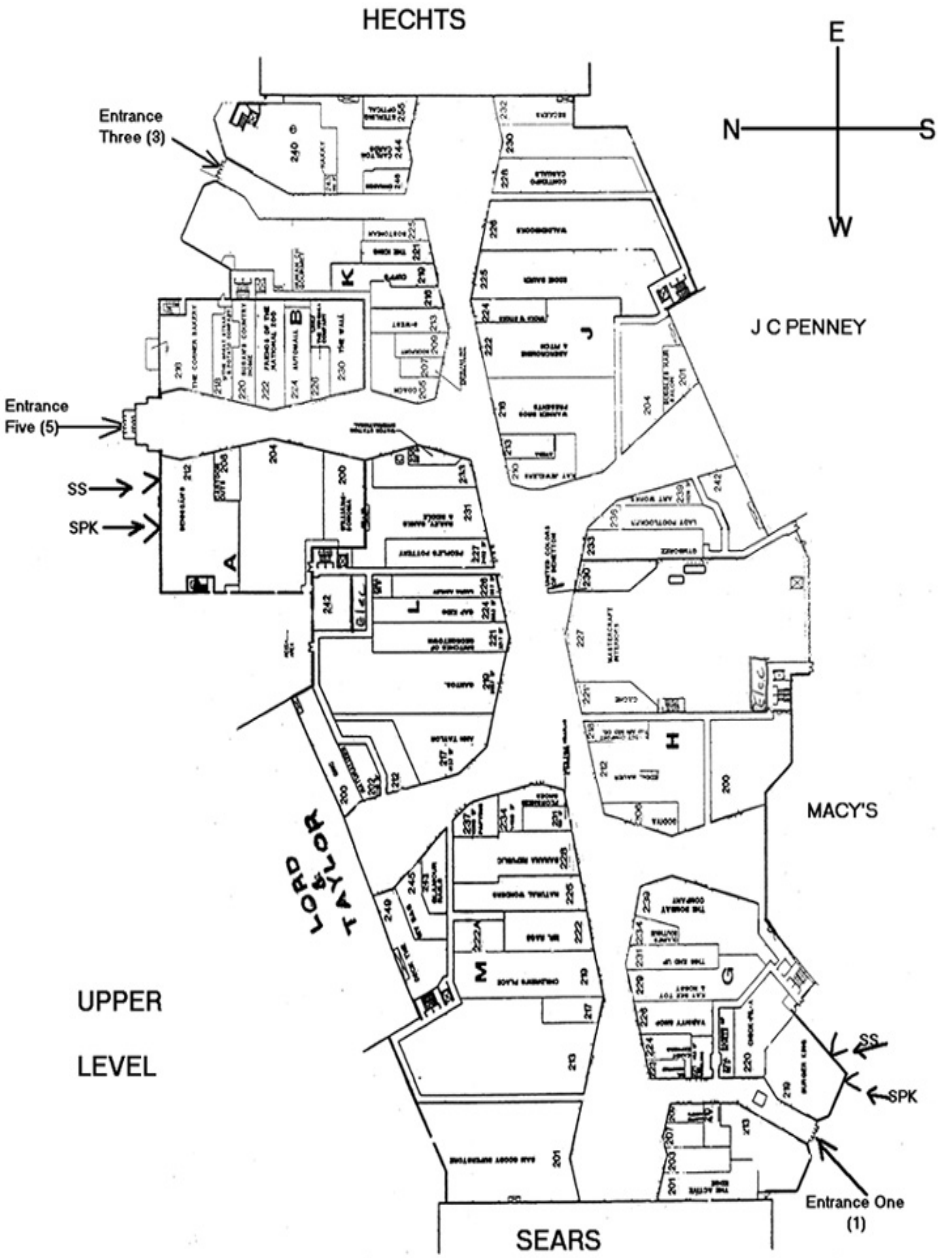
Enclosed Mall Plot Plan

Side D

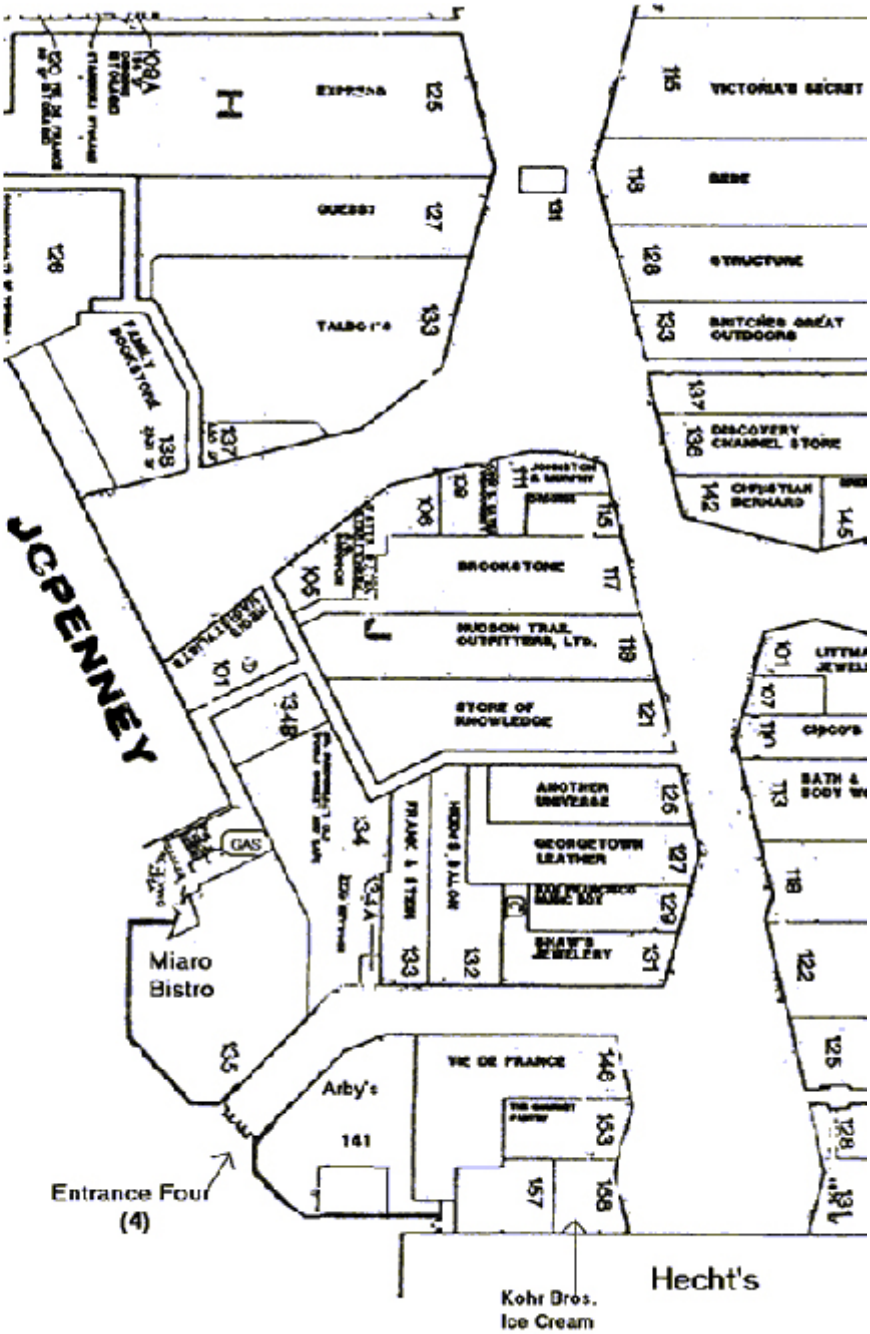


Side B

Enclosed Mall Plot Plan



Enclosed Mall Plot Plan



Central City

Incident Locator Preplan—Central City Mall

SPRINKLER ZONE 1	SPRINKLER ZONE 2	SPRINKLER ZONE 3
1. Jones Shoes 2. Johnson's Fashions 3. Office Providers 4. Multi-Screen Theaters 5. Bert's Drug Store 6. Phil's Steak and Cheese 7. Doctor John Offices 8. Central Women's Store	1. Tri-City Toys 2. Jeffries Department Store 3. U.S. Cards 4. Personal Things 5. O'Neil's Gifts 6. Bob's Dental 7. Murgallis Fine Dining 8. Phelps Dollar Store	1. Gaines Electronics 2. MacDonald's Running Store 3. Mall Conference Rooms 4. Maxine's Pets 5. Central Specialty Foods 6. Tomorrow's Fashions 7. Cooking Things

SPRINKLER ZONE 4
1. Women Today 2. Shoe Family 3. Harrison's Restaurant 4. China Specialty Store 5. Dancing Dan's Furniture 6. Josephine's Furnishings 7. The Arcade 8. Goode Hunting Equipment 9. Boyd's School Supplies

Occupancies at Central City Mall

Alphabetical List	Sprinkler Zone	Smoke Detector Zone	Entrance	Heat Detector
Bert's Drug Store	1	A	Clock	AA
Bob's Dental	2	A	Fashion	AA
Boyd's School Supplies	4	B	Grand	**N/A**
Central Specialty Foods	3	C	Stable	CC
Central Women's Store	1	A	Clock	AA
China Specialty Store	4	B	Grand	**N/A**
Cooking Things	3	C	Stable	CC
Dancing Dan's Furniture	4	B	Grand	N/A
Doctor John Offices	1	A	Fashion	AA
Gaine's Electronics	3	C	Stable	CC
Goode Hunting Equipment	4	B	Grand	**N/A**
Harrison's Restaurant	4	B	Grand	BB
Jeffries Department Store	2	A	Clock	AA
Johnson's Fashions	1	A	Clock	AA
Jones Shoes	1	A	Clock	AA
Josephine's Furnishings	4	B	Grand	**N/A**
MacDonald's Running	3	C	Stable	CC
Mall Conference Rooms	3	C	Stable	CC
Maxine's Pets	3	C	Stable	CC
Multi-Screen Theaters	1	A	Clock	AA
Murgallis Fine Dining	2	A	Clock	AA
Office Providers	1	A	Clock	AA
O'Neil's Gifts	2	A	Clock	AA
Personal Gifts	2	A	Clock	AA
Phelps Dollar Store	2	A	Clock	AA
Phil's Steak and Cheese	1	A	Clock	AA
Shoe Family	4	B	Grand	**N/A**
The Arcade	4	B	Grand	**N/A**
Tomorrows Fashions	3	C	Stable	CC
Tri-City Toys	2	A	Clock	AA
U. S. Cards	2	A	Clock	AA
Women Today	4	B	Grand	**N/A**

Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card **Response time: 20 min.**

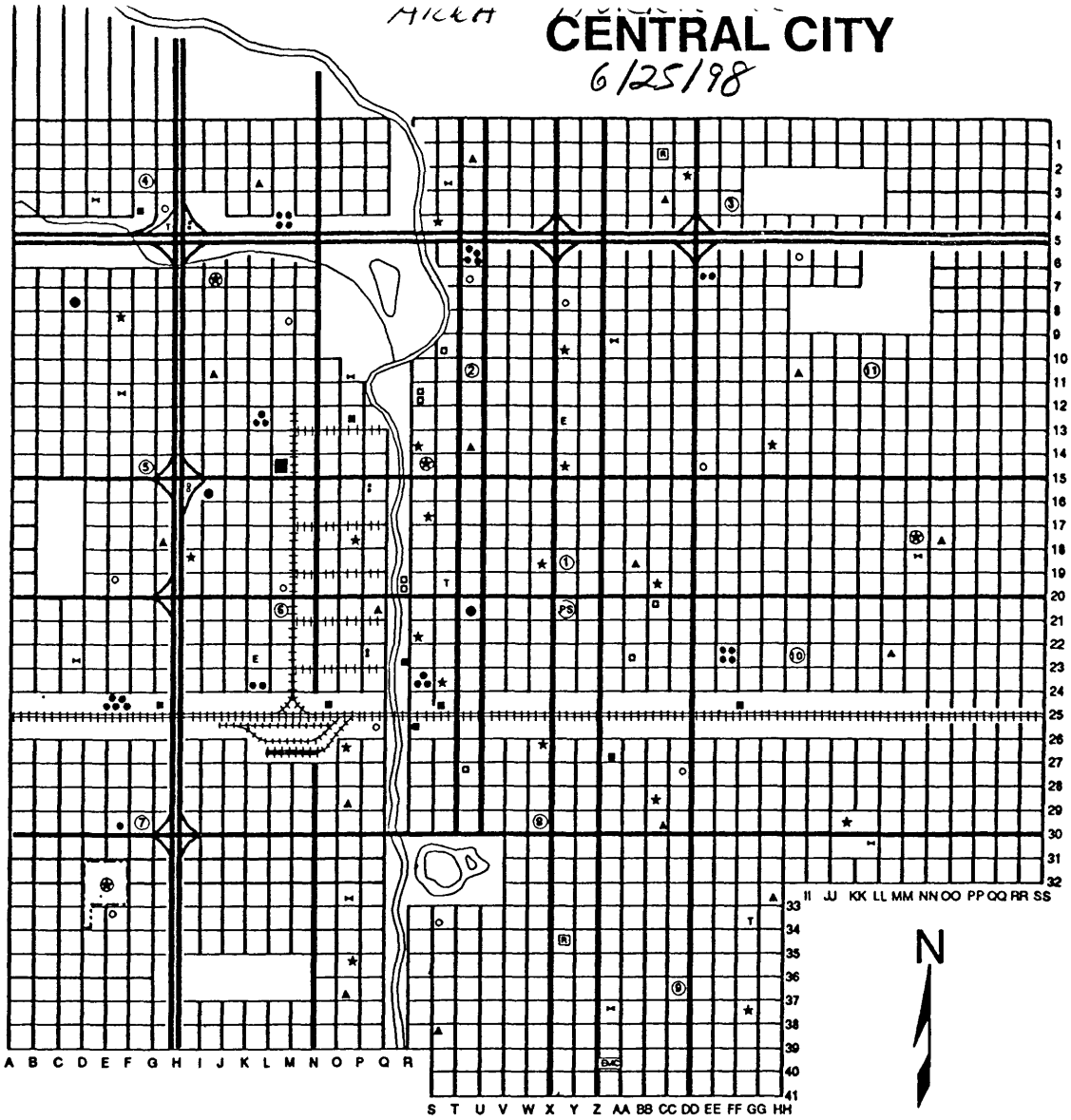
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

Instructor Notes:

These messages are examples of possible messages for the incident. You may need to adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 1400 hours**

To: Operations (Battalion Chief)

Message:

Mall maintenance and the Central City Gas Company have been working on a reported gas leak at Entrance 4 all morning. The alarm sounds just before 1400 hours November 26, the day after Thanksgiving. All stores have been overstocked for the holiday shopping season. The mall has been heavily patronized since it opened at 0900 hours. Virtually all parking places are occupied, with some cars parked on grassy areas at the perimeters of the parking lot. Outside temperature is 76º (24.4ºC) with an east wind of 10 mph.

There is a report of an explosion in the egress corridor hallway of Entrance 4, on the south side of the complex. Multiple injuries and heavy fire are reported. Engine 1, on arrival at the lower level, Side A (southeast) at Entrance 4, reports heavy smoke from the entrance and people inside, with a partial collapse inside at the Miaro Bistro Restaurant. Engine 2 has arrived on the Side C (north, upper level) of the mall near Entrance 5 and reports heavy smoke visible with in the mall hallway. Engine 2 is laying a line to the sprinkler and standpipe system. Truck 1 is accessing the roof near Entrance 4 on Side A and will report conditions. Truck 1 is also attempting to evacuate visible people at Entrance 4, Side A. Battalion 1 has arrived on the scene with Rescue 1 and Engine 3.

Slide 13-20: Aerial View of Mall

Slide 13-21: Mall Entrance

Slide 13-21: Mall Interior

Simulation Time: 00:05

SIMULATION MESSAGE

Message #2 **Incident Time: 1415 hours**

To: Operations

Message:

CCFD IMT has arrived on the scene and will be briefed by Battalion 1.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #3 **Incident Time: 1420 hours**

To: Operations/Logistics/Safety

Message:

Engine 2 reports that they have two severely burned employees from the Miaro Bistro who state that more people are trapped in the restaurant. Engine 2 can now access that area and needs assistance.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #4 **Incident Time: 0622 hours**

To: Operations/Planning/Logistics

Slide 13-23: Aerial View of Mall

Slide 13-24: Mall Entrance

Slide 13-25: Mall Interior

Simulation Time: 00:22

SIMULATION MESSAGE

Message #5 **Incident Time: 1421 hours**

To: Operations/Planning/Liaison

Message:

Second-alarm companies are in staging. They report difficulty in accessing mall area due to traffic jams. A police commander is on scene.

Simulation Time: 00:23

SIMULATION MESSAGE

Message #6 **Incident Time: 1423 hours**

To: Liaison/Safety/Operations

Message:

Mall security officer reports the mall is packed with many thousands of people.

Simulation Time: 00:23

SIMULATION MESSAGE

Message #7 **Incident Time: 1426 hours**

To: Liaison/Planning/Logistics

Message:

Engine 1 pump driver reports shoppers exiting mall area blocking access points to the parking lot.

Simulation Time: 00:26

SIMULATION MESSAGE

Message #8 **Incident Time: 1427 hours**

To: Liaison/Planning/Operations

Message:

The building manager and engineer are on the scene. Report sprinkler system pressure is low.

Simulation Time: 00:27

SIMULATION MESSAGE

Message #9 **Incident Time: 1428 hours**

To: Information Officer/Incident Commander

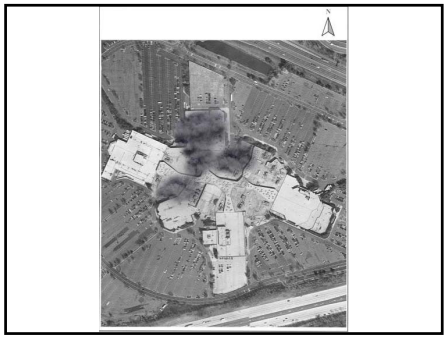
The first group of media has arrived on the scene. They have reports of thousands of people trapped and hundreds of casualties. They also have a report of a bomb exploding causing the fire. Prepare a press release.

Simulation Time: 00:28

SIMULATION MESSAGE

Message #10 **Incident Time: 1430 hours**

Slide 13-26: Aerial View of Mall



Slide 13-27: Mall Entrance

Slide 13-28: Mall Interior

Simulation Time: 00:30

SIMULATION MESSAGE

Message #11 **Incident Time: 1432 hours**

To: Operations/Logistics/Planning

Message:

Search and rescue group supervisor on the upper level in building J is directing people out Entrance 5. Smoke is heavy. They report that they are going to need additional air bottles and more personnel.

Simulation Time: 00:32

SIMULATION MESSAGE

Message #12 **Incident Time: 1433 hours**

To: Operations/Liaison/Planning

Message:

Police report approximately 7,000 cars are in parking spaces, and they see more arriving. They request information regarding mall closing be broadcast through the media. The area is gridlocked.

Simulation Time: 00:33

SIMULATION MESSAGE

Message #13 **Incident Time: 1435 hours**

To: Liaison Officer/Planning

Message:

Power and gas companies have arrived on scene. Health and public works officials have also arrived.

Simulation Time: 00:35

SIMULATION MESSAGE

Message #14 **Incident Time: 1438 hours**

To: Operations/Logistics/Planning

Message:

Search and rescue group supervisor in building H reports that smoke is medium to heavy and there are still people exiting through the Macy's store. Need fresh air bottles.

Simulation Time: 00:38

SIMULATION MESSAGE

Message #15 **Incident Time: 1440 hours**

To: Operations/Liaison/Safety

Message:

Division A supervisor reports that fire is continuing to spread down Entrance 4 hallway and has ignited one more store on each side of the hallway. The sprinklers do not appear to be working.

Simulation Time: 00:40

SIMULATION MESSAGE

Message #16 **Incident Time: 1443 hours**

To: Liaison/Operations/Planning

Message:

Building engineer reports that the sprinkler system is working west and north of the fire area; sprinklers in the Entrance 4 area are not functioning. The HVAC system in building J is damaged and not functional.

Simulation Time: 00:43

SIMULATION MESSAGE

Message #17 **Incident Time: 1445 hours**

To: Operations/Logistics/Safety

Message:

Division C supervisor reports two firefighters were injured by falling down the escalator onto the lower level. Need assistance.

Simulation Time: 00:45

SIMULATION MESSAGE

Message #18 **Incident Time: 1446 hours**

To: Operations/Liaison/Safety

Message:

Staging requests traffic control; civilian traffic is creating congestion in the staging area.

Simulation Time: 00:46

SIMULATION MESSAGE

Message #19 **Incident Time: 1448 hours**

To: Information Officer/Operations/Planning

Message:

A frantic lady is at the command post reporting two eight-year-old boys missing. They were last seen west of the entrance to Walden's bookstore on the upper level.

Simulation Time: 00:48

SIMULATION MESSAGE

Message #20 **Incident Time: 1450 hours**

To: Operations/Liaison/Planning

Message:

Division A supervisor reports that the fire appears to be spreading toward Side B; sprinklers do not appear to be working. Need fresh air bottles and more water lines.

Simulation Time: 00:50

SIMULATION MESSAGE

Message #21 **Incident Time: 1452 hours**

To: Operations/Logistics/Liaison

Message:

First-alarm pumpers are reporting a reduction in water pressure. Public works official reports 6-inch mains surround the mall. Larger 12-inch mains are 6 blocks to the east and west.

Simulation Time: 00:52

SIMULATION MESSAGE

Message #22 **Incident Time: 1453 hours**

To: Operations/Logistics/Liaison

Message:

Division C supervisor reports 15 injured civilians, all requiring treatment and transport. They also report low water pressure.

Simulation Time: 00:53

SIMULATION MESSAGE

Message #23 **Incident Time: 1455 hours**

To: Operations/Logistics

Message:

Smoke is medium from all sides. Division A supervisor reports some knock down of fire. Still need additional water lines.

Slide 13-29: Aerial View of Mall

Slide 13-30: Mall Entrance

Slide 13-31: Mall Interior

Simulation Time: 00:55

SIMULATION MESSAGE

Message #24 **Incident Time: 1458 hours**

To: Operations/Logistics/Planning

Message:

Search and rescue group supervisor reports finding 8 unconscious victims in Arby's off Entrance 4 hallway. They will be removing them out Entrance 4. Need medical assistance. Five are young girls about 12 years old.

Simulation Time: 00:58

SIMULATION MESSAGE

Message #25 **Incident Time: 1503 hours**

To: Information Officer/Incident Commander

Message:

The mayor and two councilpersons are on the scene. The media are requesting updated information on casualties and fatalities.

Simulation Time: 01:03

SIMULATION MESSAGE

Message #26 **Incident Time: 1505 hours**

To: Operations/Planning/Safety

Message:

Divisions A and B supervisors report they are now holding the fire.

Simulation Time: 01:05

SIMULATION MESSAGE

Message #27 **Incident Time: 1506 hours**

To: Liaison Officer/Operations/Logistics

Message:

Division C supervisor reports no further spread of fire on the upper level. Smoke conditions are now light to medium.

Simulation Time: 01:06

SIMULATION MESSAGE

Message #28 **Incident Time: 1508 hours**

To: Information Officer/Incident Commander

Message:

Search and rescue group supervisor on the lower level building J report an additional five victims overcome with smoke. Will require medical assistance. Three victims are senior citizens, and two are employees.

Simulation Time: 01:08

SIMULATION MESSAGE

Message #29 **Incident Time: 1510 hours**

To: Operations/Logistics/Safety

Message:

Division C supervisor reports they have located two deceased victims. Both are boys about eight years old.

Simulation Time: 01:10

SIMULATION MESSAGE

Message #30 **Incident Time: 1515 hours**

Slide 13-32: Aerial View of Mall

Slide 13-33: Mall Entrance

Slide 13-34: Mall Interior

Simulation Time: 01:15

SIMULATION MESSAGE

Message #31 **Incident Time: 1520 hours**

To: Operations/Logistics/Liaison

Message:

Division A supervisor reports one firefighter has collapsed. Appears not to be breathing.

Simulation Time: 01:20

SIMULATION MESSAGE

Message #32 **Incident Time: 1525 hours**

To:

Message:

Companies searching stores in J building lower level report finding 11 unconscious victims in the southeast corner. Where should they take them?

Simulation Time: 01:25

SIMULATION MESSAGE

Message #33 **Incident Time: 1530 hours**

To: Operations/Planning/Safety

Message:

Manager of Warner Brothers (upper level) reports three missing employees. They were last seen in the storage room area.

Simulation Time: 01:30

SIMULATION MESSAGE

Message #34 **Incident Time: 1532 hours**

To: Operations/Planning/Logistics

Message:

Search and rescue group supervisors are requesting oxygen and face masks for victims as well as transport and gurneys.

Simulation Time: 01:32

SIMULATION MESSAGE

Message #35 **Incident Time: 1534 hours**

To: Operations/Logistics/Liaison

Message:

Companies in all J building stores report that fire is out, but medium to heavy smoke persists.

Simulation Time: 01:34

SIMULATION MESSAGE

Message #36 **Incident Time: 1540 hours**

To:

Message:

Companies searching for Warner Brothers employees report medium smoke and limited visibility. Need ventilation.

Simulation Time: 01:40

SIMULATION MESSAGE

Message #37 **Incident Time: 1545 hours**

Message:

Simulation complete. Take 10 minutes to recap activities.

Simulation Time: 01:45

SIMULATION MESSAGE

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Matrix: Shopping Mall		
Function	**Message #11**	**Message #13**
Command	Monitor progress and evaluate strategy.	Support operations' requests for resources.
Safety	Enforce safe corridors of operation. Address FF accountability. Confront tactical safety.	Enforce safe corridors of operation. Review special considerations (type of structure/ contents/equipment/use).
Liaison	Maintain communications with agencies. Communicate on building occupant accountability.	Maintain communications with agencies. Communicate on building occupant accountability.
Information	Gather incident information.	Gather incident information. Establish media staging area.
Operations	Determine need for additional resources. Evaluate progress of operations.	Maintain active communication with companies. Adjust tactics. Evaluate progress of operations.
Planning	Predict incident progress. Predict resource needs.	Predict incident progress. Predict resource needs. Maintain situation and resource status records.
Logistics	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims).	Anticipate breathing air needs. Establish support for incident supplies: batteries, radios, tools, lighting, etc.
Administration/ Finance		

Simulation Matrix: Shopping Mall		
Function	**Message #15**	**Message #17**
Command	Monitor progress and evaluate strategy. Consider adjusting strategy. Support operations' requests for resources.	Monitor progress and evaluate strategy. Support operations' requests for resources.
Safety	Consider structural integrity. Address FF accountability. Confront tactical safety. Review special considerations (type of structure/contents/equipment/use).	Consider structural integrity. Address FF accountability. Confront tactical safety.
Liaison	Brief IC on agency status.	
Information	Conduct press briefing.	
Operations	Define tactics. Determine need for additional resources. Adjust tactics. Evaluate progress of operations.	Determine need for additional resources. Adjust tactics.
Planning	Modify action plan to meet changing situation.	Predict incident progress. Predict resource needs.
Logistics	Anticipate breathing air needs.	Anticipate EMS requirements for triage, treatment, transport (FF and victims).
Administration/ Finance		Document injuries and deaths.

Simulation Matrix: Shopping Mall		
Function	**Message #19**	**Message #22**
Command	Support operations'' requests for resources.	Support operations' requests for resources.
Safety	Enforce safe corridors of operation.	Enforce safe corridors of operation.
Liaison	Communicate on building occupant accountability.	Maintain communication with agencies. Communicate on building occupant accountability. Communicate on utilities.
Information		Gather incident information.
Operations	Adjust tactics.	Determine need for additional resources. Adjust tactics.
Planning		Predict resource needs.
Logistics		Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish facilities and support for relocation and shelters. Establish facilities and support for rest and rehab areas.
Administration/ Finance		Develop purchase order numbers. Document injuries and deaths.

Simulation Matrix: Shopping Mall		
Function	**Message #31**	**Message #33**
Command	Monitor progress and evaluate strategy. Consider adjusting strategy. Develop and approve action plan.	Support operations' requests for resources.
Safety	Enforce safe corridors of operation. Confront tactical safety. Review special considerations (type of structure/contents/equipment/use).	Enforce safe corridors of operation.
Liaison	Communicate on building occupant accountability.	Maintain communication with agencies.
Information	Gather incident information. Conduct press briefing.	
Operations	Deploy companies. Determine need for additional resources. Adjust tactics.	Deploy companies. Determine need for additional resources.
Planning	Modify action plan to meet changing situation.	Predict resource needs.
Logistics	Anticipate breathing air needs. Establish support for incident supplies: batteries, radios, tools, lighting, etc.	Establish support for incident supplies: batteries, radios, tools, lighting, etc.
Administration/ Finance	Track all costs. Document injuries and deaths.	Track all costs.

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	
Major Hazards and Risks:		
Narrative:		
Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Press Questions

What is the current situation?

_____

_____

How many occupants have been injured?

_____

_____

Have any deaths been reported?

_____

_____

How did the fire start? Where?

_____

_____

Did the smoke detectors operate properly?

_____

_____

Activity 13.1:
Enclosed Mall Simulation Exercise
Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage an enclosed mall incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (a second Aide designated for groups with more than 10)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

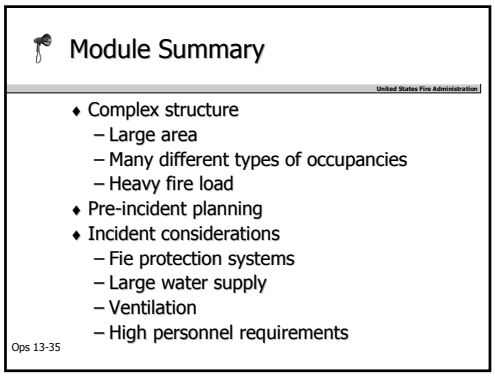
Activity 13.1:
Enclosed Mall Simulation Exercise
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Slide 13-35: Module Summary



IX. Module Summary (5 minutes)

- Complex structure of enclosed malls:
  - Large areas,
  - Many different types of occupancies, and
  - Heavy fire load;
- Pre-incident planning
  - Thorough knowledge of mall,
  - Frequent drills, and
  - Keeping up to date on changes in occupancy; and
- Incident considerations
  - Internal fire protection systems,
  - Large water supply needs,
  - Ventilation, and
  - High personnel requirements.

MODULE 13

APPENDIX

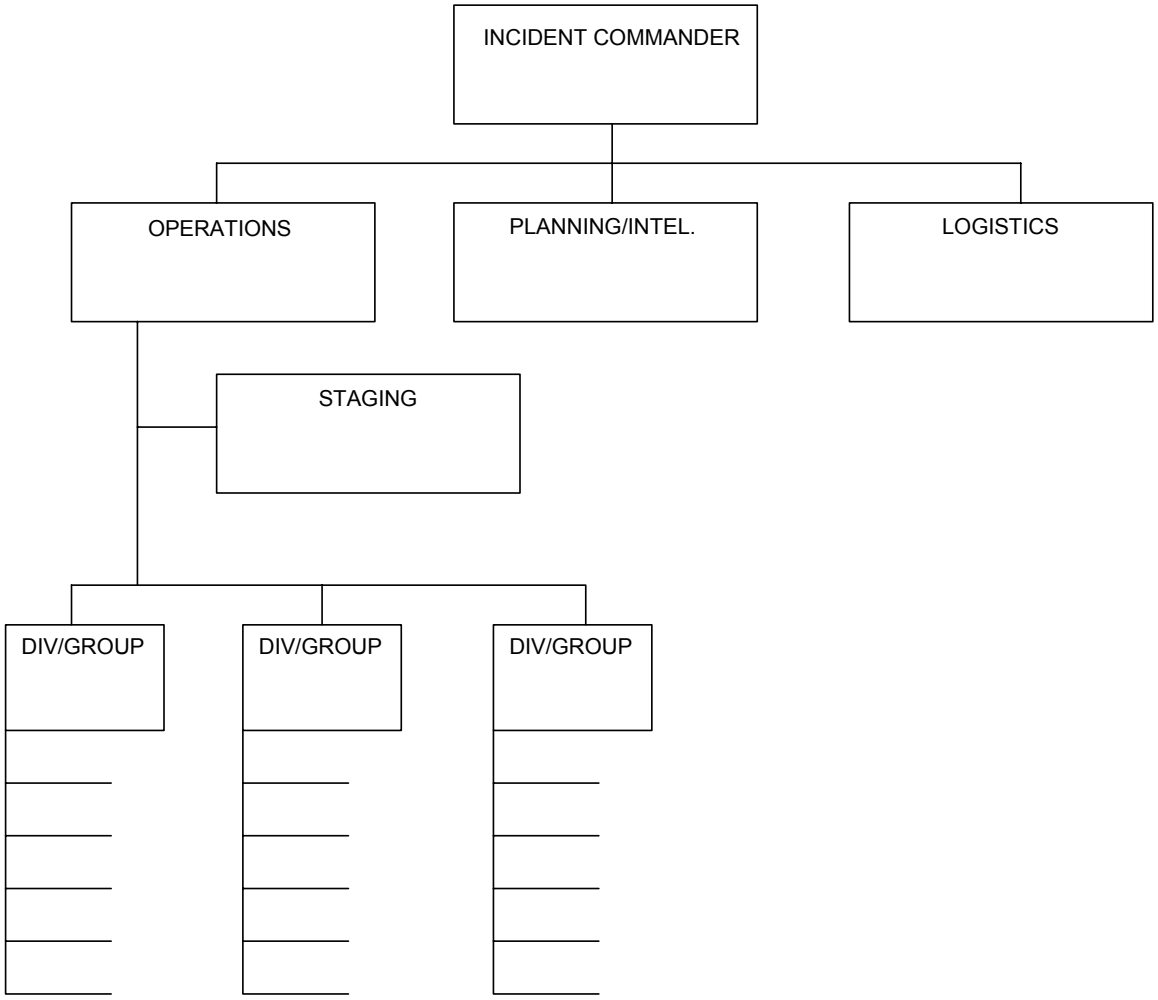
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

MODULE 14

MODULE 14

PUBLIC ASSEMBLY/ MASS CASUALTY SIMULATION EXERCISE

MODULE 14:

PUBLIC ASSEMBLY/MASS CASUALTY SIMULATION EXERCISE

Terminal Objective

Upon completing the module, students will be able to apply the ICS organization to manage a public assembly/mass casualty incident.

Enabling Objectives

Students will:

- Identify the life safety problems associated with public assemblies;
- Identify the critical factors in public assemblies that affect strategy for a mass casualty incident;
- Prepare a pre-incident plan for a target hazard that will experience an incident;
- Establish incident objectives;
- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage a public assembly/mass casualty incident.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer
- LCD projector
- One portable screen or classroom equipped with screen
- Chalkboard/wipeboard
- Easel pads with markers
- Command Worksheets (may use local fire department worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than “normal” first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who

makes command level decisions based on strategic objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities. Some of these hazards are significant and are known as target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

<u>Expanded Written Incident Action Plan</u>

This course is designed for battalion chief level officers operating at target hazard incidents that usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

The instructor should carefully read the instructor guide and the student manual and become familiar with the content before presenting the course.

The module combines a lecture and simulation for a public assembly. Ensure that students understand the management needs, cues, and ICS organization structure needed at public assembly/mass casualty incidents.

Methodology

This module uses lecture, discussion, an activity, and a simulation exercise.

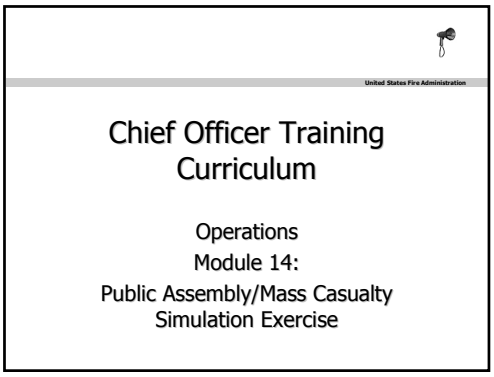
Outline

I. Objectives and Overview ..... 5 minutes
II. Assembly Facilities ..... 20 minutes
III. Mass Casualty Incidents ..... 25 minutes
IV. Activity 14.1: Airport Pre-Incident Planning ..... 60 minutes
V. Activity 14.2: Airport Incident Simulation Exercise ..... 120 minutes
VI. Module Summary ..... 10 minutes
240 minutes

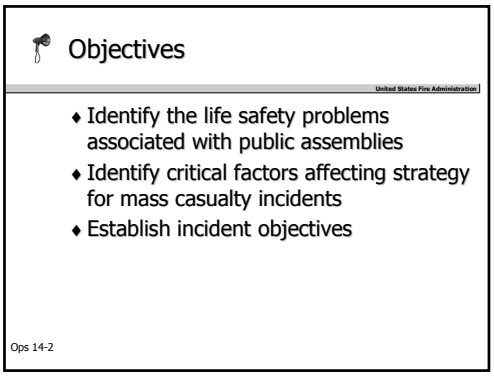
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

Slide 14-1: Module 14, Public Assembly/Mass Casualty Simulation Exercise



Slide 14-2: Objectives



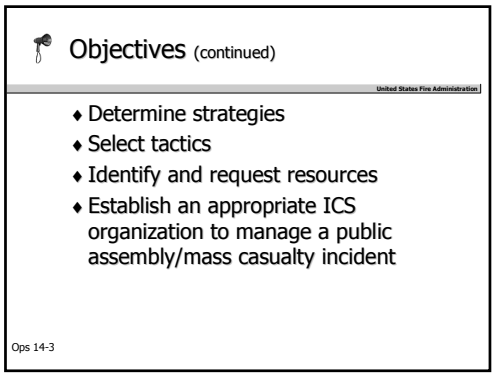
I. Objectives and Overview (5 minutes)

A. Objectives

Students will be asked to:

- Identify the life safety problems associated with public assemblies;
- Identify the critical factors in public assemblies that affect strategy for a mass casualty incident;
- Establish incident objectives;

Slide 14-3: Objectives (continued)

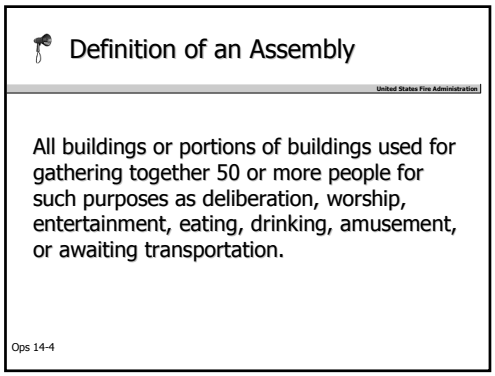


- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage a public assembly/mass casualty incident.

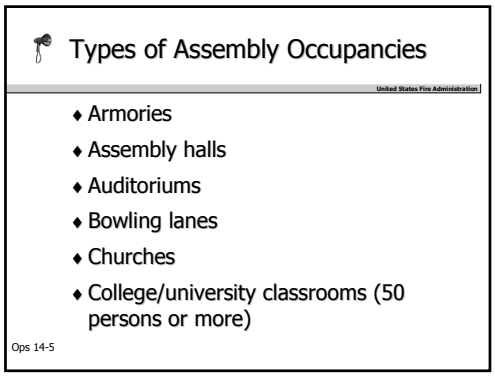
B. Overview

- The module begins with a lecture and discussion of critical factors of public assembly facilities and critical considerations for mass casualty incidents.
- The first activity provides practice in anticipating strategy development and resource management for an incident at an airport terminal.
- The simulation exercise provides practice in commanding a mass casualty incident at the airport terminal.

Slide 14-4: Definition of an Assembly



Slide 14-5: Types of Assembly Occupancies



II. Assembly Facilities (20 minutes)

A. Definition of an assembly occupancy

Assembly occupancies include, but are not limited to, all buildings or portions of buildings used for gathering together 50 or more persons for such purposes as deliberation, worship, entertainment, eating, drinking, amusement, or awaiting transportation.

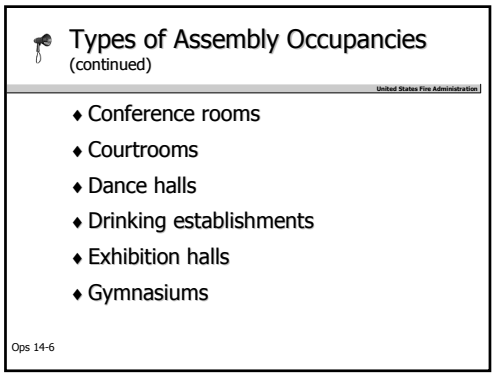
Instructor Notes:

Ask the students to identify various types of assemblies. Write a list on an easel pad; then present the following list.

B. Types of assembly occupancies

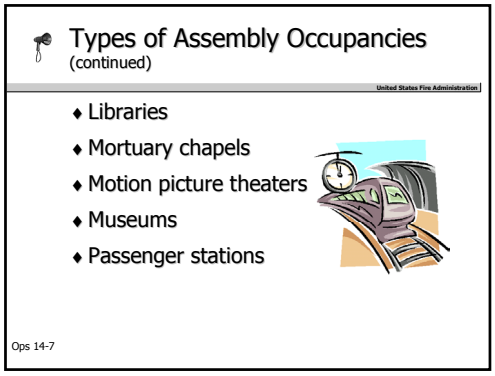
- Armories,
- Assembly halls,
- Auditoriums,
- Bowling lanes,
- Churches,
- College/university classrooms (50 persons or more),

Slide 14-6: Types of Assembly Occupancies (continued)



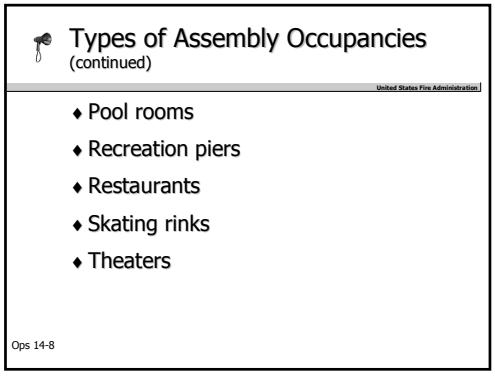
- Conference rooms,
- Courtrooms,
- Dance halls,
- Drinking establishments,
- Exhibition halls,
- Gymnasiums,

Slide 14-7: Types of Assembly Occupancies (continued)



- Libraries,
- Mortuary chapels,
- Motion picture theaters,
- Museums,
- Passenger stations and terminals of air/surface, underground, and marine public transportation facilities,

Slide 14-8: Types of Assembly Occupancies (continued)



- Pool rooms,
- Recreation piers,
- Restaurants,
- Skating rinks, and
- Theaters.

Instructor Notes:

Occupancy of any room or space for assembly purposes by less than 50 persons in a building of other occupancy and incidental to such other occupancy shall be classified as part of the other occupancy and subject to the provisions applicable thereto.

At this point, engage students in an interactive lecture by asking them to identify assemblies in their community that require pre-incident planning. Ask students as they identify each assembly to elaborate on the following questions.

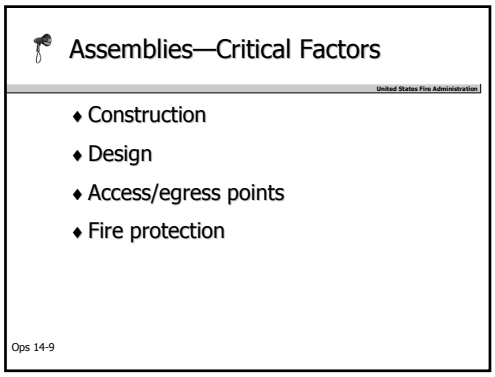
What level of pre-incident planning has been completed to date?

What do you foresee as the biggest challenge this assembly presents regarding life safety?

What strategies are critical if a fire occurs in this assembly?

What strategies are critical if a mass-casualty incident occurs in this assembly?

Slide 14-9: Assemblies—Critical Factors



C. Critical factors affecting strategy

- Construction of the assembly will be a key critical factor in developing strategy for a fire or mass casualty incident:
  - Ordinary construction;
  - Bowstring construction;
  - Truss construction;
  - Steel bar joists;
  - Concrete/steel construction with an atrium (mid-rise/high-rise style);
  - Wood-frame construction;
  - Prefabricated structures; and
  - Tents.

Instructor Notes:

Ask the students to identify other types of assembly construction found in their communities.

- Design:
  - Converted building design (gentrification of a structure);
  - Large, unbroken area;

- Multiple levels of occupancy (for example, balconies and overhangs);
- Open stairwells; and
- Below-grade assembly areas.

- Access/egress points:
  - Doors are often locked for security reasons.
  - Exit doors are often hidden by furnishings.
  - Often passageways are narrow corridors leading to the assembly area.
  - Occupancy flow is designed for entering and exiting from the same point. (People evacuating will seek the same door to exit from which they entered.)
  - Apparatus placement may be limited by single access roads.

- Fire protection:
  - Sprinklers may or may not be present.
  - Large kitchens are common.
  - Firefighters need knowledge of Heating, Ventilating, and

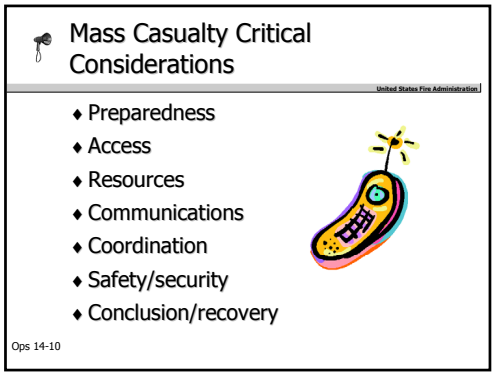
Air Conditioning (HVAC) systems.

* Various types of alerting systems are installed in assemblies.

* Employee training in fire safety usually is limited.

* Water supply for firefighting may be limited because of the assembly's location, such as a remote area.

Slide 14-10: Mass Casualty Critical Considerations

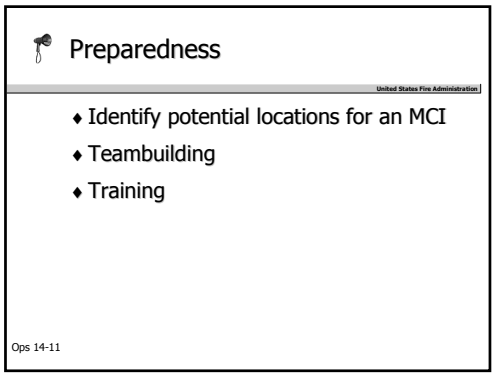


III. Mass Casualty Incidents (25 minutes)

There are seven critical considerations in a mass casualty incident:

- Preparedness,
- Access,
- Resources,
- Communications,
- Coordination,
- Safety/security, and
- Conclusion/recovery.

Slide 14-11: Preparedness



A. Preparedness

- Identify potential locations for a Mass Casualty Incident (MCI):
  - Assemblies,
  - Airports,
  - Public transportation systems,
  - Interstate highways,
  - Penal institutions, and
  - Chemical plants.

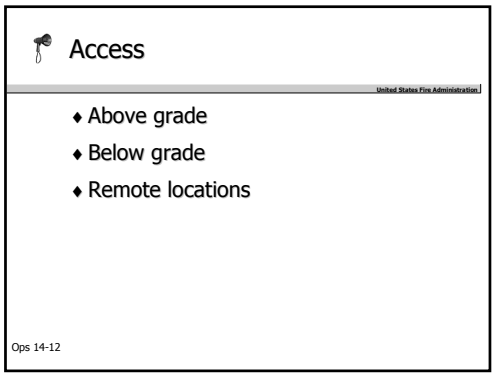
Instructor Notes:

Mention to the students that MCIs often result from natural disasters or fire emergencies.

- Teambuilding:
  - Intradepartmental relationships within your own department;
  - Interagency relationships;
  - Mutual aid;
- Training:
  - Prepare an MCI SOG;
  - Conduct drills; and

* Critique and evaluate drills.

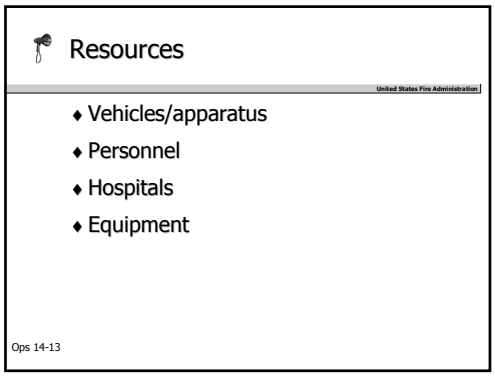
Slide 14-12: Access



B. Access

- Above grade:
  * Bridge spans,
  * Building collapse,
  * Chemical release, and
  * Elevated train systems.
- Below grade:
  * Depressed rail systems,
  * Subway systems,
  * Tunnels, and
  * Mines.
- Remote locations:
  * Wooded terrain,
  * Waterways, and
  * No highway access.

Slide 14-13: Resources



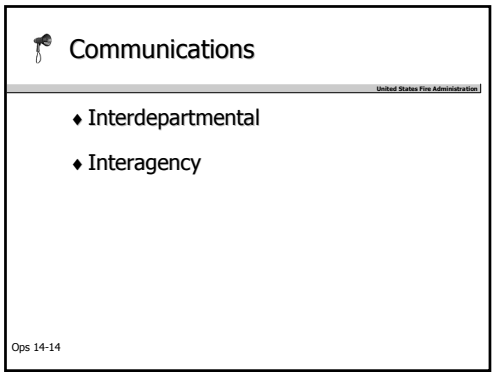
C. Resources

- Vehicles/apparatus:
  - Fire,
  - Police,
  - EMS ambulances (municipal),
  - Private ambulances,
  - Helicopters,
  - Public buses,
  - Private contractors:
    - Cranes,
    - Cutting equipment, and
    - Tow trucks.
- Personnel:
  - Stretcher bearers:
    - Red Cross volunteers and
    - College students,
  - Medical/surgical teams, and
  - Clergy (comforting source).
- Hospitals:
  - Trauma centers (golden hour);

- Pediatric care; and
- Special care (for example, eye injuries, burns, spine injuries, and head injuries).

- Equipment:
  - Spine boards,
  - Medical supplies,
  - Drugs,
  - Oxygen,
  - Triage tags,
  - Lighting (if needed),
  - Cutting/lifting tools, and
  - Mass casualty vehicle equipment and supplies.

Slide 14-14: Communications



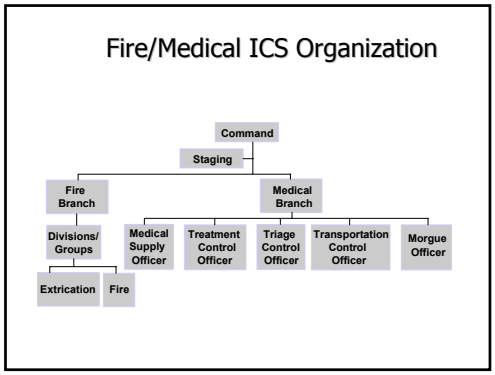
D. Communications

- Intradepartmental:
  - Portable radio,
  - Cellular phone, and
  - Handline (sound-powered phone systems).

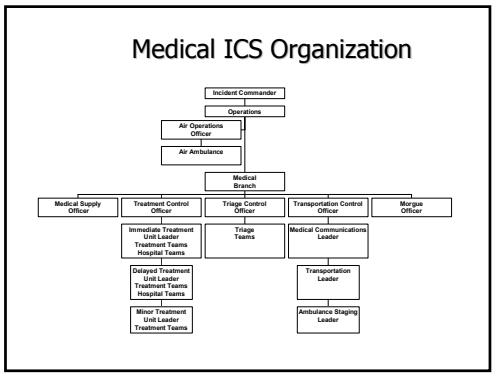
- Interagency:

* Compatible radio frequencies (for example, police, EMS, public works, and fire);
* Medical command;
* Helicopters;
* Private ambulance; and
* Media.

Slide 14-15: Fire/Medical ICS Organization



Slide 14-15: Medical ICS Organization



E. Coordination

Instructor Notes:

Refer the students to Figures 14-1, Fire/Medical ICS Organization, and 14-2, Medical ICS Organization, in their student manuals. Briefly review the chart with them. The figures are provided on the following pages in the instructor guide.

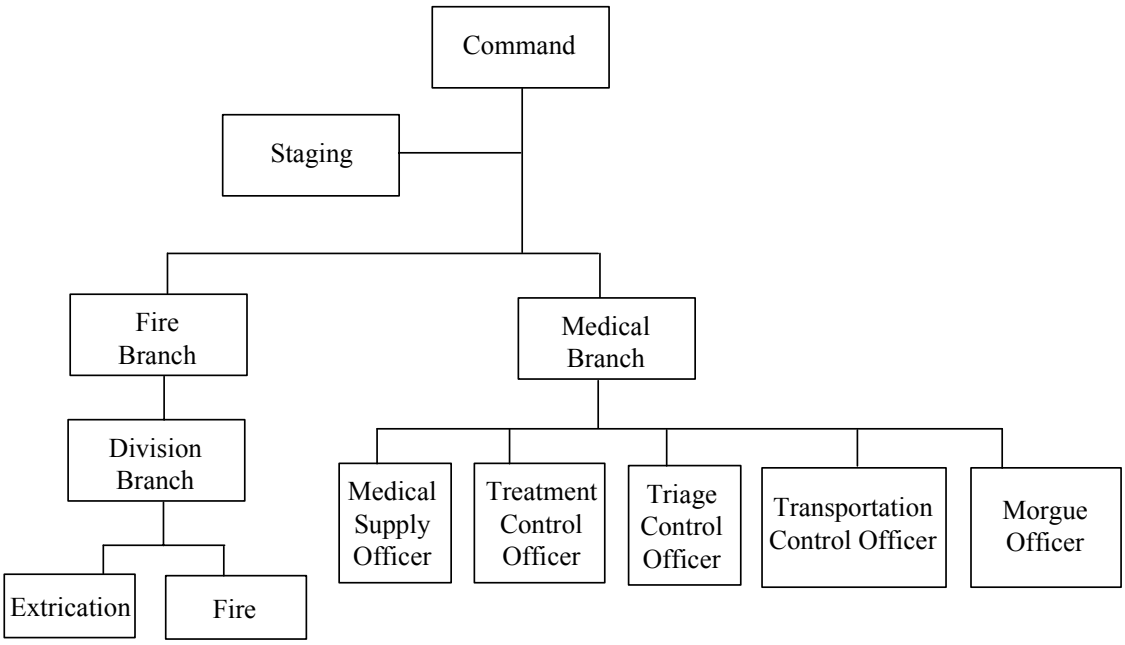


Figure 14-1: Fire/Medical ICS Organization

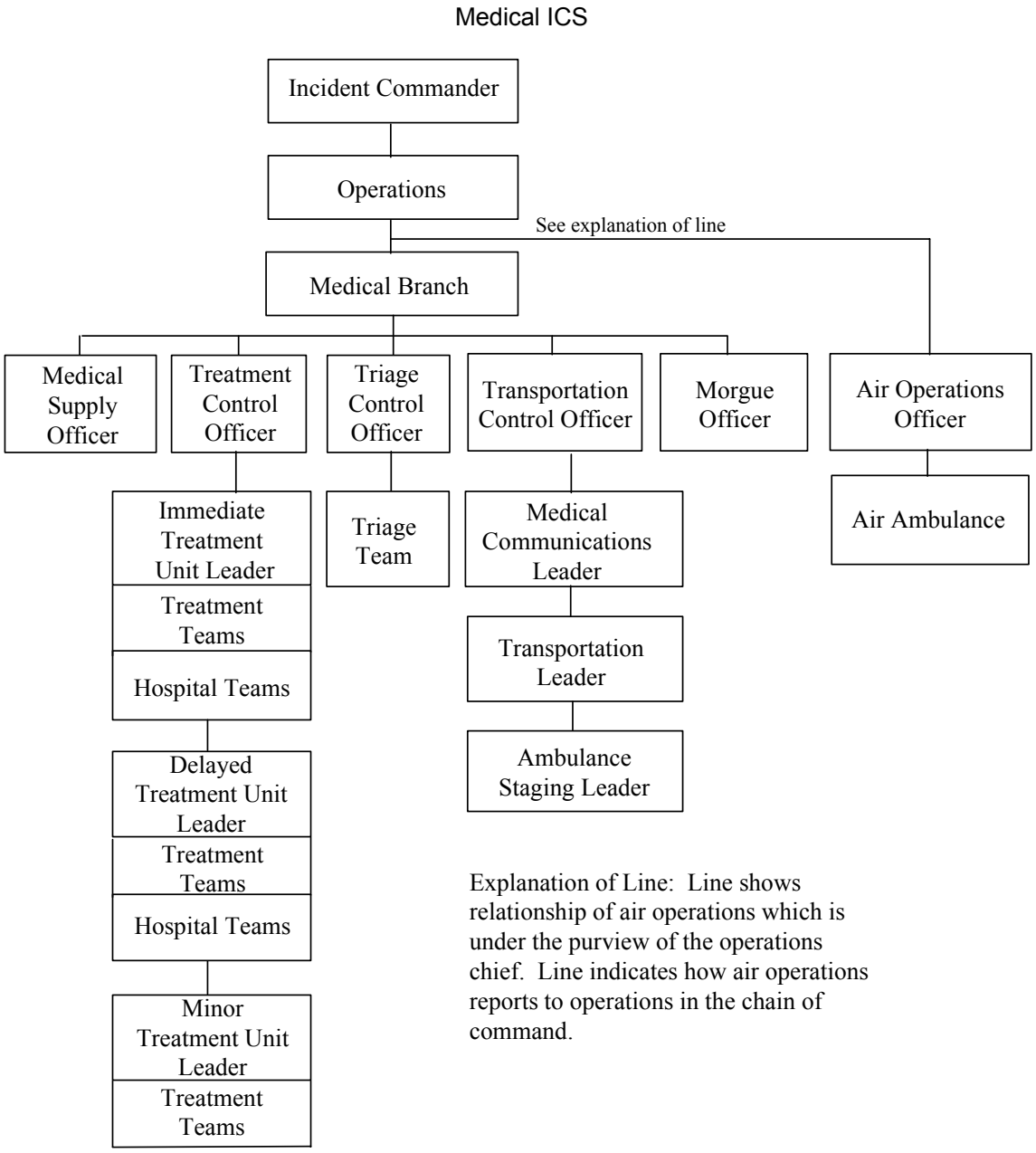
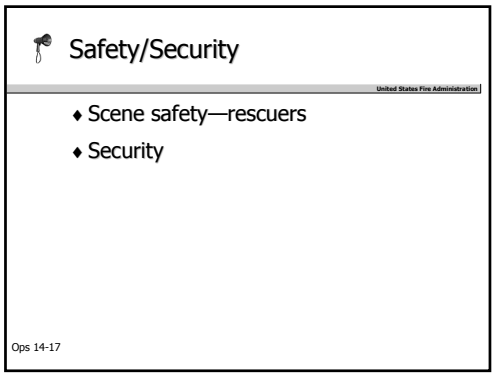


Figure 14-2: Medical ICS Organization

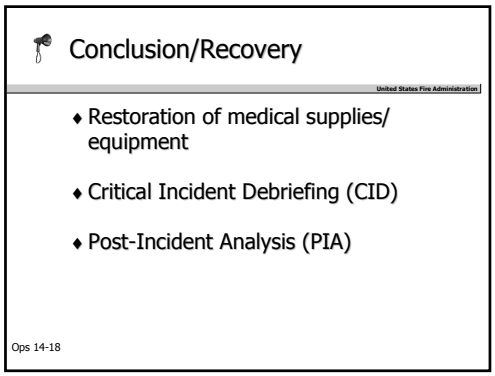
Slide 14-17: Safety/Security



F. Safety and Security

- Scene safety—rescuers:
  - Secondary collapses;
  - Flammable/toxic vapors;
  - Precision extrication, cutting hydraulic lines (for example, aircraft and trains);
  - Fatigue extricators, rescuers, and command staff ; and
  - Appoint an Incident Safety Officer (ISO)/safety company as required.
- Security:
  - Establish safe corridors of operation;
  - Designate travel routes to and from hospital; and
  - Secure the scene with police.

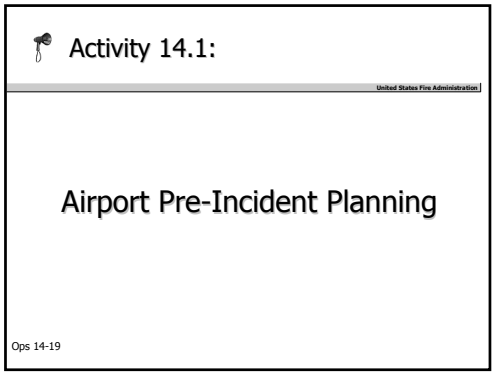
Slide 14-18: Conclusion/Recovery



G. Conclusion/recovery

- Restoration of medical supplies/equipment;
- Critical Incident Debriefing (CID) immediately after incident; and
- Post-Incident Analysis (PIA).

Slide 14-19: Activity 14.1: Airport Pre-Incident Planning



IV. Activity 14.1: Airport Pre-Incident Planning (60 minutes)

Instructor Notes:

Refer the students to Activity 14.1, Airport Pre-Incident Planning, in their student manuals.

Activity 14.1:
Airport Pre-Incident Planning

Time: 60 minutes

Purpose:

To anticipate strategy development and resource management for a target hazard incident.

Materials:

- Easel pads
- Markers
- Airport Terminal Quick Access Prefire Plan (QAP)

Directions:

1. Divide the class into small groups of four or five students.

2. Ask each group to brainstorm and identify the most important pre-incident planning concerns for the Central City Airport. The airport, located in Liberty County, is under the responsibility of the Central City Fire Department (CCFD) for emergency fire protection.

3. Groups will record on an easel pad all pre-incident planning concerns that they identify. Allow 30 minutes for groups to identify and record their concerns.

4. Each group should select a spokesperson to report the group's concerns to the class.

Airport Information:

- Location: Liberty County, ½ mile outside of Central City.

- Type: Index "B"—includes aircraft at least 90', but less than 126' in length. Accommodating small jets and prop aircraft. Often 60 "souls on board" can be anticipated on an aircraft.

- Access: Two-lane road in and out of airport. Five-degree upward slope

entering airport.

- Construction: One and two-story noncombustible structure. Second floor houses control tower at junction of A/B sides.

- Occupancy: Airport terminal building. Limited number of consumer shops and car rental agencies. Restaurant/bar located on first floor, Sides B/C. Propane heating and cooking system. Garage located on Side C.

- Fire Protection: Garage houses maintenance vehicles and quick-response foam pumper carrying 1,500 gallons of water, 100 gallons of Aqueous Film-Forming Foam (AFFF) concentrate, and 500 pounds of sodium-based dry chemical. Three firefighters/EMTs staff airport from 0600 to 2200 hours daily during period airport is open for incoming and outgoing aircraft.

- First-due Central City engine company has approximately a 3-minute response time.

- EMS: First aid equipment on pumper/semi-automatic external defibrillator.

- Runways: Two available for aircraft, parallel, running east and west.

- Fuel Depot: Two 40’ high x 30’ diameter atmospheric tanks (external floating roofs) located ¼ mile from terminal building of airport.

- Miscellaneous: Often during peak travel periods 100 commuters may be at the airport.

- Staffing: One officer, two firefighters/EMTs on duty between 0600 hours and 2200 hours.

Students should refer to their Quick Access Prefire Plan (QAP) for additional information.

Airport Terminal
Quick Access Prefire Plan

Building Address: *110 Sky View Drive*

Building Description:
One- and two-story—Noncombustible—75' x 175'

Roof Construction:
Steel bar joist with concrete asphalt deck and covering

Floor Construction:
First floor—concrete slab
Second floor—Steel bar joist, concrete

Occupancy Type:	**Initial Resources Required:**
Airport terminal building	*First-alarm assignment*

Hazards to Personnel:
Restaurant facilities—fuel tank storage

Location of Water Supply:	**Available Flow:**
Hydrants—8-inch county system—hydrants 100' apart	*1,000-gpm per hydrant*

		Estimated Fire Flow				
	Level of Involvement	10%	25%	50%	100%	
	Estimated Fire Flow	550	1,400	2,750	5,500	

**Fire flow based on first floor or terminal building with one exposure story.*

Fire Behavior Prediction:
Internal exposures, open areas, terminal
Flammable liquid fire, storage areas, aircraft

Predicted Strategies:
Rescue, confinement, extinguishment, ventilation

Problems Anticipated:
Access, water supply, aircraft

☐ **Standpipe:**	☐ **Sprinklers:**	☒ **Fire Detection:**
N/A	*N/A*	

Activity 14.1:
Airport Pre-Incident Planning
Student Activity Worksheet

Time: 60 minutes

Purpose:

To anticipate strategy development and resource management for a target hazard incident.

Materials:

- Easel pads
- Markers
- Airport Terminal Quick Access Prefire Plan (QAP)

Directions:

1. Your instructor will divide the class into small groups of four or five students.

2. Your group will brainstorm and identify the most important pre-incident planning concerns for the Central City Airport. The airport, located in Liberty County, is under the responsibility of the Central City Fire Department (CCFD) for emergency fire protection.

3. Record your pre-incident planning concerns on an easel pad. You will have 30 minutes to identify and record your concerns.

4. Select a spokesperson to report your group's concerns to the class.

Airport Information:

- Location: Liberty County, ½ mile outside of Central City.

- Type: Index "B"—includes aircraft at least 90', but less than 126' in length. Accommodating small jets and prop aircraft. Often 60 "souls on board" can be anticipated on an aircraft.

- Access: Two-lane road in and out of airport. Five-degree upward slope entering airport.

- Construction: One and two-story noncombustible structure. Second floor houses control tower at junction of A/B sides.

- Occupancy: Airport terminal building. Limited number of consumer shops and car rental agencies. Restaurant/bar located on first floor, Sides B/C. Propane heating and cooking system. Garage located on Side C.

- Fire Protection: Garage houses maintenance vehicles and quick-response foam pumper carrying 1,500 gallons of water, 100 gallons of Aqueous Film-Forming Foam (AFFF) concentrate, and 500 pounds of sodium-based dry chemical. Three firefighters/EMTs staff airport from 0600 to 2200 hours daily during period airport is open for incoming and outgoing aircraft.

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- EMS: First aid equipment on pumper/semi-automatic external defibrillator.

- Runways: Two available for aircraft, parallel, running east and west.

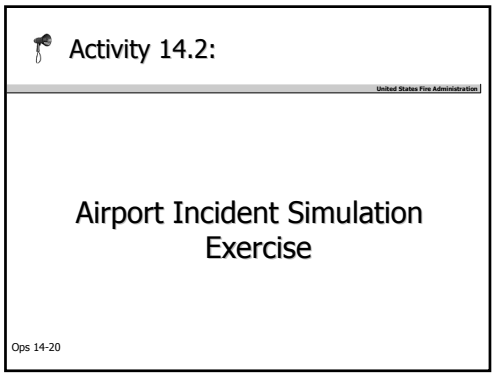
- Fuel Depot: Two 40’ high x 30’ diameter atmospheric tanks (external floating roofs) located ¼ mile from terminal building of airport.

- Miscellaneous: Often during peak travel periods 100 commuters may be at the airport.

- Staffing: One officer, two firefighters/EMTs on duty between 0600 hours and 2200 hours.

Refer to the Quick Access Prefire Plan (QAP) for additional information.

Slide 14-20: Activity 14.2: Airport Incident Simulation Exercise



V. Activity 14.2: Airport Incident Simulation Exercise and Debriefing (120 minutes)

Instructor Notes:

Refer students to Activity 14.2, Airport Incident Simulation Exercise, in their student manuals.

Activity 14.2:
Airport Incident Simulation Exercise

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a public assembly/mass casualty incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in the appendix), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups:**

   Each group will staff the positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. **Review the simulation rules:**

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control objectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will identify planning needs using the FOG Position Checklist: develop an alternate plan, collect and record information, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the times listed on each. The time in the upper right corner of each message indicates the

real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening, observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
- Planning Chief: Alternate plan
- Logistics Chief: Resource list
- Safety Officer: Safety message
- Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.

- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

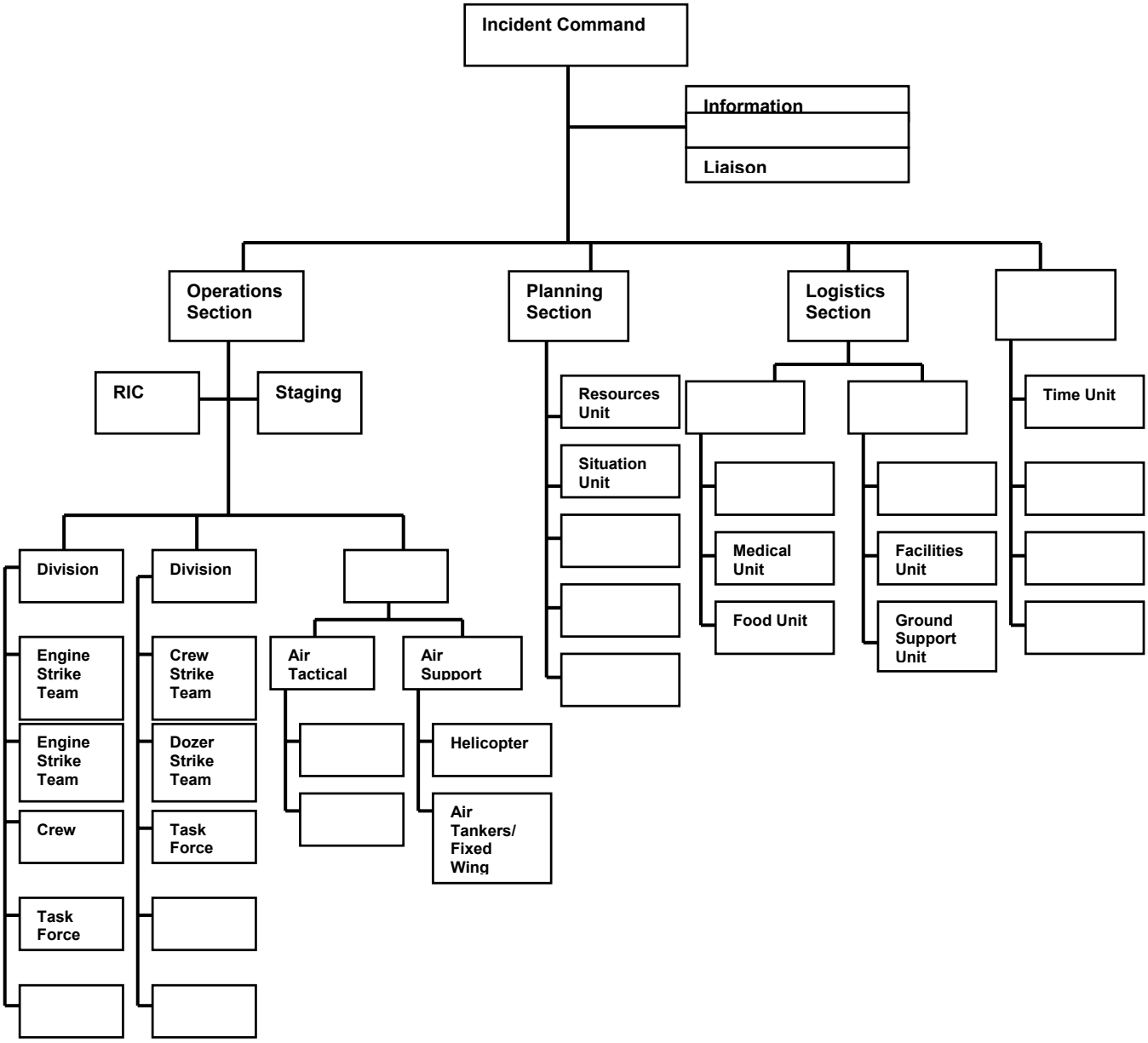
Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and discussing the following questions:

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?

- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Sample Incident Organization

Public Assembly/Mass Casualty Simulation Exercise



Incident overview:

The incident occurs at 1400 hours on December 23, one of the busiest travel days of the year. The airport is a regional facility that handles commuter and medium jet aircraft. It had been snowing since 0430, but stopped at 0800. At the time of the incident, accumulation is 15 inches. This snow was added to previous snow accumulation of 66 inches from 3 previous storms. Winds were blowing from the northeast at 18 to 22 mph. No planes were flying due to blizzard conditions.

The Liberty County Airport is located near the town of Kingston. The airport is governed by the Liberty County Airport Authority, which has contracted with Central City for fire, EMS, and security services. The agreement with the Authority places the airport property within Central City jurisdictional control.

Flights were restarted at 1300 hours, so approximately 100 persons are still at the airport. Most are in the gate areas, the terminal, and the restaurant and adjacent bar. At 1403 hours, the roof covering the B/C corner of the terminal collapses into the restaurant/bar and the lobby/check-in area on the first floor. Approximately 75 people are trapped.

This is a multi-agency response incident and should challenge students to significantly broaden their resource requests. The size of the casualty potential, weather conditions, and jurisdictional issues all require strong resource management and documentation.

Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

Slide 14-21: Side A and parking lot areas, with access roads

Slide 14-22: Side A (left)

Slide 14-23: Side A (right)

Slide 14-24: Sides A and D

Slide 14-25: Sides C and D

Slide 14-26: Only access road to airport

Airport Terminal
Quick Access Prefire Plan

Building Address: *110 Sky View Drive*

Building Description:
One- and two-story—Noncombustible—75' x 175'

Roof Construction:
Steel bar joist with concrete asphalt deck and covering

Floor Construction:
First floor—concrete slab
Second floor—Steel bar joist, concrete

Occupancy Type:	**Initial Resources Required:**
Airport terminal building	*First-alarm assignment*

Hazards to Personnel:
Restaurant facilities—fuel tank storage

Location of Water Supply:	**Available Flow:**
Hydrants—8-inch county system—hydrants 100' apart	*1,000-gpm per hydrant*

		Estimated Fire Flow				
	Level of Involvement	10%	25%	50%	100%	
	Estimated Fire Flow	550	1,400	2,750	5,500	

**Fire Behavior Prediction:*
Internal exposures, open areas, terminal
Flammable liquid fire, storage areas, aircraft

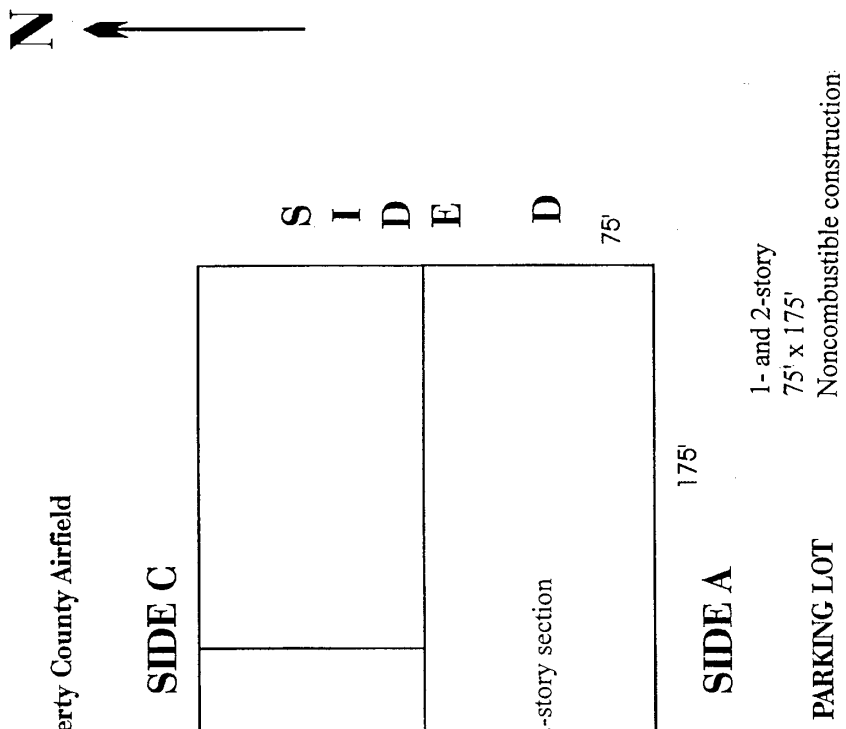
Predicted Strategies:
Rescue, confinement, extinguishment, ventilation

Problems Anticipated:
Access, water supply, aircraft

☐ **Standpipe:**	☐ **Sprinklers:**	☒ **Fire Detection:**
N/A	*N/A*	

*Fire flow based on first floor or terminal building with one exposure story.

AIRPORT TERMINAL BUILDING



Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card **Response time: 20 min.**

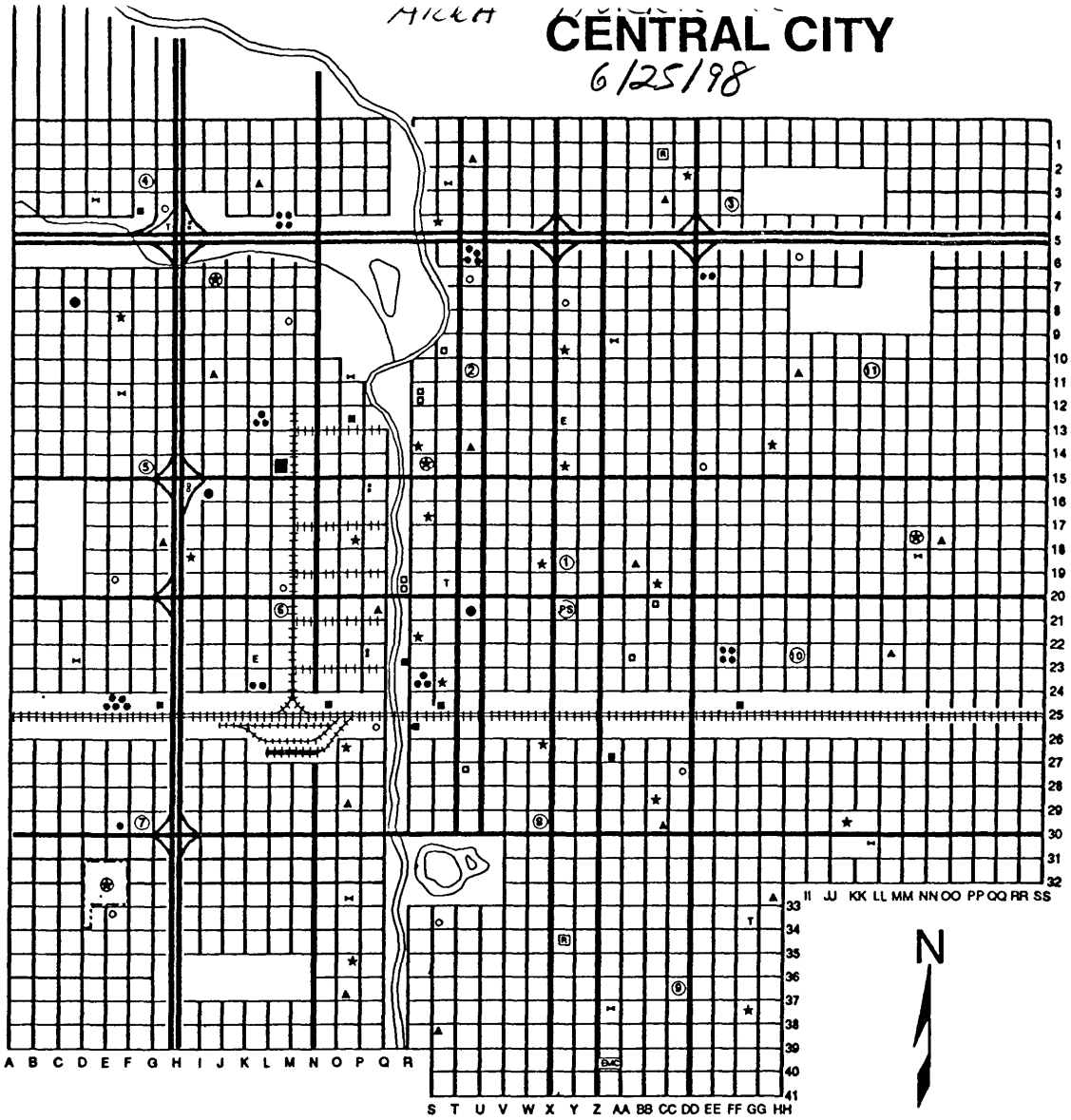
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

Instructor Notes:

These messages are examples of possible messages for the incident. You may need to adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 1410 hours**

To: Operations

Message:

It is December 23, the temperature is 8 degrees, and the wind is out of the west at 18 mph. The area has just received 15" of fresh snow. The airport has just reopened, and air travel has been resumed. It is 1400 hours, and the roof covering the A/D corner of the terminal has collapsed into the restaurant/bar and the lobby/check-in area on the first floor. Airport crash rescue reports a roof collapse has occurred on the A/D side of the terminal area. It looks like flat pan, bar joist construction. People are trapped in the restaurant and in the ticket desk area on the first floor. There is a propane gas line burning at the D corner.

Engine 1 has been assigned Division 1 for fire attack. Airport Crash Rescue, Truck 1, and Engine 2 have been assigned as a search and rescue group. Maintenance crews are escorting people out of the terminal from the doors on the western end of the building. There may be as many as 75 persons trapped. I have requested a second alarm. Engine 3, Squad 1, Rescue 3, MSU 6, and ALS Ambulance 2 have just arrived on the scene and have not been assigned.

Slide 14-27: Collapsed Roof

Simulation Time: 00:05

SIMULATION MESSAGE

Message #2 **Incident Time: 1425 hours**

To: Battalion Chief 1

Message:

CCFD IMT has arrived on scene and will be briefed by the Battalion Chief 1.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #3 **Incident Time: 1427 hours**

To: Operations/Liaison/Safety

Message:

Airport officials have not closed the airport. Shall they keep it open? They have several planes in a holding pattern at this time, and the weather forecast is calling for more snow.

Simulation Time: 00:17

SIMULATION MESSAGE

Message #4 **Incident Time: 1430 hours**

To: Operations/Planning

Message:

Second alarm in at staging.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #5 **Incident Time: 1432 hours**

To: Operations/Logistics/Liaison

Message:

Search and rescue group reports that there may be as many as 50 seriously injured people in the collapse area. There is arcing occurring in the collapse area. Need shoring materials.

Simulation Time: 00:22

SIMULATION MESSAGE

Message #6 **Incident Time: 1435 hours**

To: Operations/Logistics/Liaison

Message:

Search and rescue reports that they have extricated 10 ambulatory persons and transferring them to the medical group.

Simulation Time: 00:25

SIMULATION MESSAGE

Message #7 **Incident Time: 1436 hours**

To: Liaison/ Operations

Message:

Airport manager reports that five employees were in the collapse area.

Simulation Time: 00:26

SIMULATION MESSAGE

Message #8 **Incident Time: 1437 hours**

To: Operations/Liaison/Information Officer

Message:

Dispatch center reports numerous calls from citizens about relatives who were at the airport.

Simulation Time: 00:27

SIMULATION MESSAGE

Message #9 **Incident Time: 1438 hours**

To: Operations/Safety/Logistics

Message:

Search and rescue group report concern for secondary collapse. Some materials are continuing to fall. They have just extricated four seriously injured. Serious neck and back injuries. Trauma transports. Removing injured to the medical group. Need additional spine boards and collars.

Simulation Time: 00:28

SIMULATION MESSAGE

Message #10 **Incident Time: 1439 hours**

To: Information Officer/Incident Commander

Message:

Police at the airport driveway entrance are holding media. They are requesting permission to take pictures of the collapse area. They also have reports of many fatalities. Please prepare a written press release.

Simulation Time: 00:29

SIMULATION MESSAGE

Message #11 **Incident Time: 1440 hours**

To: Liaison/Operations/Planning

Message:

Power, gas, and FAA officials are on the scene. Weather forecast calls for snow to begin falling again at 1600 hours, with temperatures dropping to near zero with gusting winds.

Simulation Time: 00:30

SIMULATION MESSAGE

Message #12 **Incident Time: 1443 hours**

To: Operations/Safety/Logistics

Message:

Search and rescue group report that they need additional cutting torches and heavy moving equipment to lift the roof to extricate trapped people.

Simulation Time: 00:33

SIMULATION MESSAGE

Message #13 **Incident Time: 1445 hours**

To: Operations/Logistics/Planning

Message:

EMS captain reports they need more medical supplies and additional EMS personnel; they need transportation for 30 occupants with minor to moderate injuries, as well as for 8 severely injured who are trauma transports.

Simulation Time: 00:35

SIMULATION MESSAGE

Message #14 **Incident Time: 1447 hours**

To: Liaison/Operations/Safety

Message:

Building power is shut down. Gas line fire has been stopped by cripping the gas line. The 150 lb propane cylinder feeding the gas line is damaged and cannot be shut down. It continues to leak propane gas.

Simulation Time: 00:37

SIMULATION MESSAGE

Message #15 **Incident Time: 1451 hours**

To: Liaison/Logistics/Planning

Message:

Central City Hospital administrator asking for information on number of casualties they can expect. More specifically, trauma transports.

Simulation Time: 00:41

SIMULATION MESSAGE

Message #16 **Incident Time: 1500 hours**

To: Incident Commander

Message:

Simulation complete. Take 10 minutes to recap activities.

Simulation Time: 00:50

SIMULATION MESSAGE

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Matrix: Airport		
Function	**Message #1**	**Message #5**
Command	Perform size-up, establish strategy, develop ICS structure.	Perform size-up, establish strategy, develop ICS structure. Monitor progress and evaluate strategy.
Safety	Consider structural integrity. Enforce safe corridors of operation. Confront tactical safety. Review special considerations (type of structure/contents/equipment/use).	Confront tactical safety. Review special considerations (type of structure/ contents/equipment/use).
Liaison	Identify personal contacts. Identify concern agencies.	Maintain communication with agencies. Communicate on utilities.
Information		Gather incident information.
Operations	Deploy companies. Define tactics. Determine need for additional resources. Establish fire/EMS ICS operational structure.	Establish fire/EMS ICS operational structure. Adjust tactics. Evaluate progress of operations.
Planning	Predict incident progress. Predict resource needs.	Predict incident progress. Maintain situation and resource status records.
Logistics	Anticipate EMS requirements for triage, treatment, transport (FF and victims).	Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish support for incident supplies: batteries, radios, tools, lighting, etc.
Administration/ Finance		

Simulation Matrix: Airport		
Function	**Message #6**	**Message #9**
Command	Support operations' requests for resources.	Consider adjusting strategy.
Safety	Review special considerations (type of structure/contents/equipment/use).	Consider structural integrity. Enforce safe corridors of operation. Address FF accountability. Judge apparatus placement safety. Review special considerations (type of structure/ contents/equipment/use).
Liaison	Communicate on building occupant accountability. Identify shelter and/or rehabilitation locations. Communicate on utilities.	Communicate on building occupant accountability.
Information		Gather incident information. Prepare information release. Maintain media contacts. Establish media staging area.
Operations	Deploy companies.	Adjust tactics.
Planning	Predict incident progress. Predict resource needs. Maintain situation and resource status records.	Predict resource needs. Work with technical specialists.
Logistics	Anticipate EMS requirements for triage, treatment, transport (FF and victims).	Establish facilities and support for rest and rehab areas. Establish support for incident supplies: batteries, radios, tools lighting, etc.
Administration/ Finance		

Simulation Matrix: Airport		
Function	**Message #12**	**Message #13**
Command	Support operations' requests for resources.	Support 0perations' requests for resources.
Safety		Confront tactical safety considerations (type of structure/contents/equipment/use).
Liaison	Maintain communication with agencies. Brief IC on agency status.	Maintain communication with agencies.
Information	Cooperate with other IOs. Conduct press briefing.	Prepare public service announcements.
Operations	Determine need for additional resources. Evaluate progress of operations.	Determine need for additional resources. Maintain active communication with companies.
Planning	Modify action plan to meet changing situation. Work with technical specialists.	Maintain situation and resource status records. Work with technical specialists.
Logistics	Establish support for incident supplies: batteries, radios, tools, lighting, etc. Manage command post area/vehicle.	Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish facilities and support for relocation and shelters. Establish support for incident supplies: batteries, radios, tools, lighting, etc. Manage command post area/vehicle.
Administration/ Finance	Develop purchase order numbers. Document injuries and deaths. Maintain records of outside agency participation.	Track all costs. Maintain records of outside agency participation.

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	

Major Hazards and Risks:

Narrative:

Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Press Questions

What has happened here?

_____

_____

How many people have been injured? Are there any fatalities?

_____

_____

We have a report that a bomb exploded? Is this a terrorist incident?

_____

_____

How long will the airport be shut down?

_____

_____

Can the area hospitals treat all the injured?

_____

_____

Is snow causing problems in transporting the injured?

_____

_____

How many resources are at the scene?

_____

_____

How long will it be before the incident is controlled?

_____

_____

Activity 14.2:
Airport Incident Simulation Exercise
Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a public assembly/mass casualty incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (a second Aide designated for groups with more than 10)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

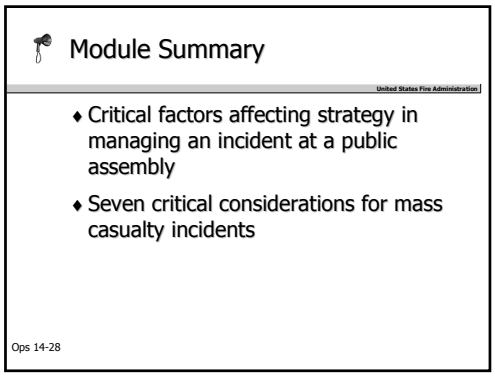
Activity 14.2:
Airport Incident Simulation Exercise
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Slide 14-28: Module Summary



VI. Module Summary (10 minutes)

Instructor Notes:

Briefly summarize the module and provide an opportunity for students to comment and ask questions.

- Critical factors that affect strategy in managing an incident at a public assembly:
  - Construction of the assembly;
  - Design;
  - Access and egress points; and
  - Fire protection.
- The seven critical considerations for mass casualty incidents are:
  - Preparedness,
  - Access,
  - Resources,
  - Communications,
  - Coordination,
  - Safety/security, and
  - Conclusion/recovery.

MODULE 14

APPENDIX

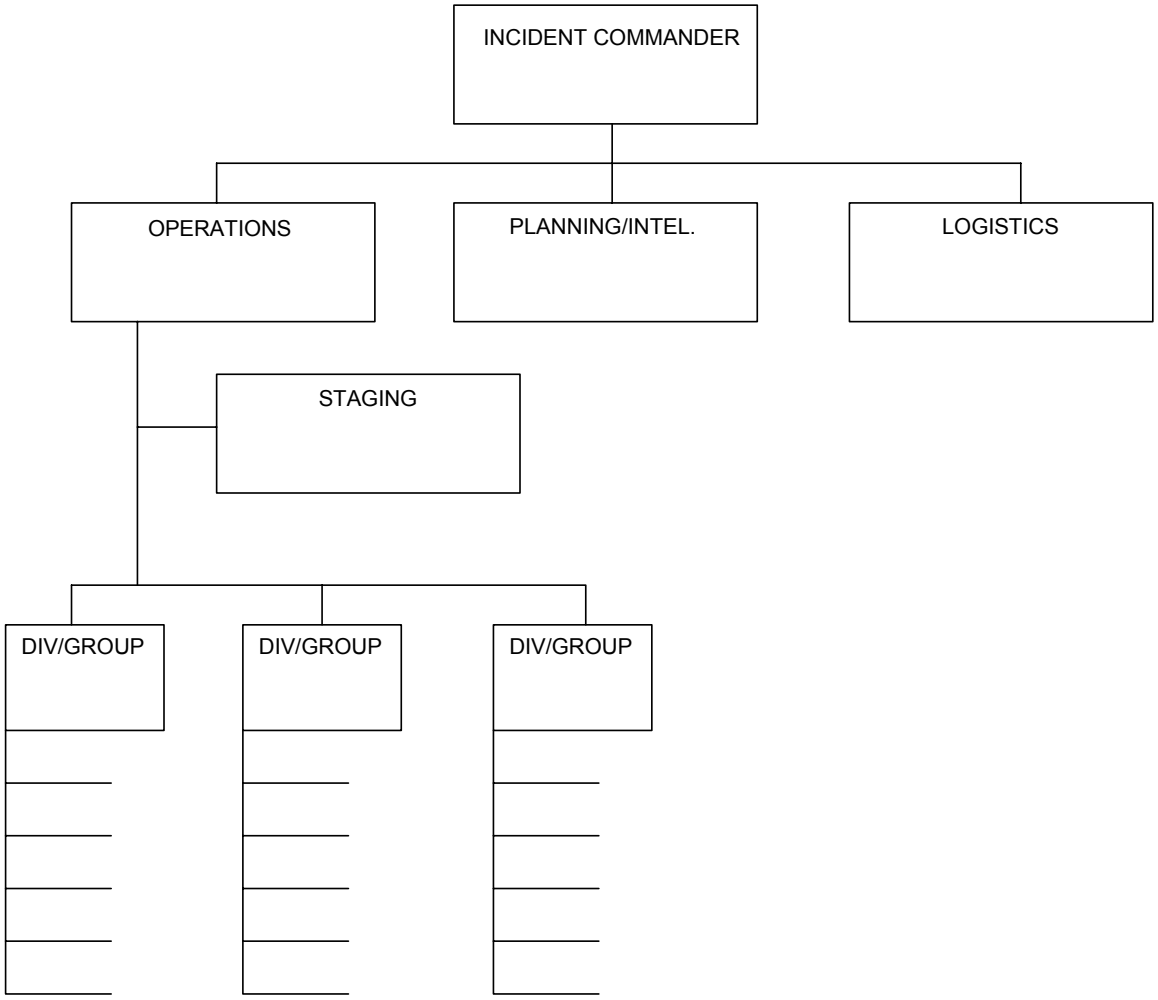
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

MODULE 15

MODULE 15

HIGH-RISE SIMULATION EXERCISE

MODULE 15:

HIGH-RISE SIMULATION EXERCISE

Terminal Objective

Upon completing this module, students will be able to effectively manage a high-rise incident.

Enabling Objectives

Students will:

- Identify critical cues at a high-rise incident;
- Establish incident objectives;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer
- LCD projector
- One portable screen or classroom equipped with screen
- Chalkboard/wipeboard
- Easel pads with markers

- Command Worksheets (may use local fire department worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than “normal” first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who makes command level decisions based on strategic objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities. Some of these hazards are significant and are known as

target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

Expanded Written Incident Action Plan

This course is designed for battalion chief level officers operating at target hazard incidents that usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206), you will need to

develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

The instructor should carefully read both the instructor guide and the student manual and become familiar with the content before presenting the course.

The module combines a lecture and simulation for a high-rise incident. Ensure that students understand the management needs, cues, and ICS organization structure needed at high-rise incidents.

Methodology

This module uses lecture, discussion, and a simulation exercise.

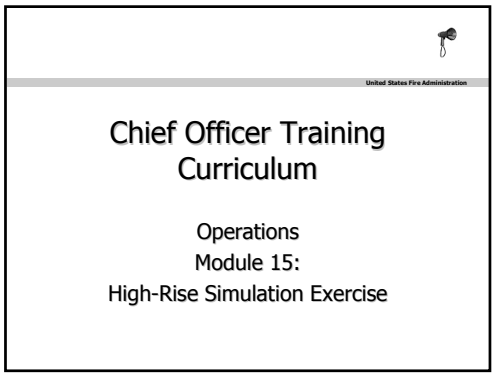
Outline

I. Objectives and Overview ..... 5 minutes
II. Pre-Incident Planning Considerations ..... 30 minutes
III. High-Rise Building Systems ..... 30 minutes
IV. High-Rise Fire Control Stations/Rooms ..... 5 minutes
V. Fire Behavior and Spread ..... 5 minutes
VI. ICS for High-Rise Incidents ..... 5 minutes
VII. High-Rise Simulation Exercise ..... 150 minutes
VIII. Module Summary ..... 10 minutes
240 minutes

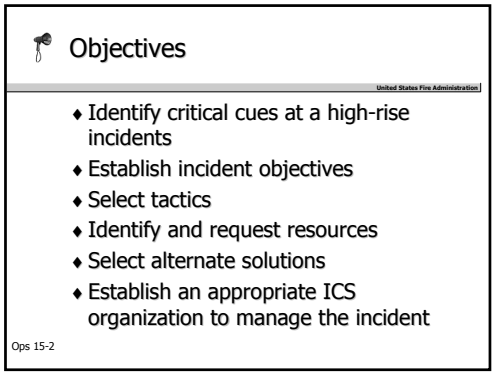
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

Slide 15-1: Module 15, High-Rise Simulation Exercise



Slide 15-2: Objectives



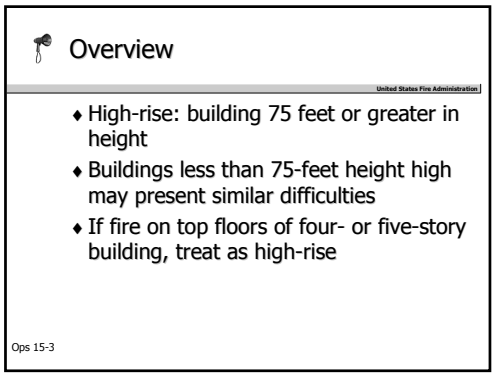
I. Objectives and Overview (5 minutes)

A. Objectives

Students will be asked to:

- Identify critical cues at a high-rise incident;
- Establish incident objectives;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Slide 15-3: Overview



B. Overview

- Buildings of 75 feet or greater height are considered high-rise buildings.
- Buildings of less than 75 feet high, while not high-rises, may present some of the same firefighting difficulties as a high-rise.
- A high-rise incident is one of the most complex and dangerous incidents to which a fire department will respond.
- Many fire departments have buildings of only four or five stories in their jurisdictions. When a fire is on the top one or two floors, the situation must be treated as a high-rise incident.
- It is imperative to civilian and firefighter safety that fire service personnel recognize the problems associated with high-rise incidents.

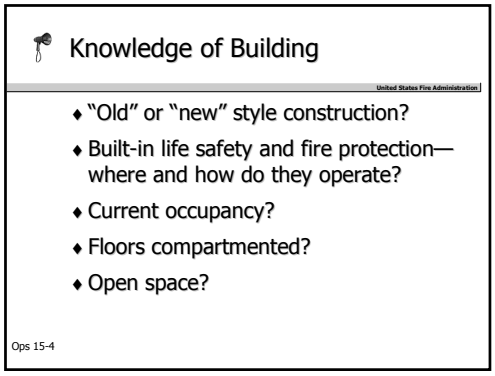
II. Pre-Incident Planning Considerations (30 minutes)

A high-rise building requires preplanning to obtain necessary information on the structure and the fire protection systems.

Codes and construction methodology

have changed through the years, and consequently, not all high-rises have the same fire protection features.

Slide 15-4: Knowledge of Building

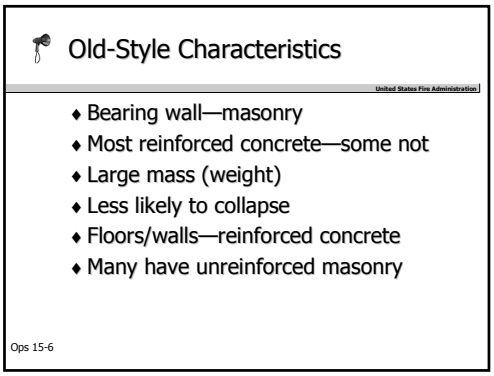


A. Knowledge of the Building

- Strategy and tactics for high-rise fires are affected greatly by fire personnel knowledge of building construction and design features.
- Some of the questions that need to be answered in the preplan are:
  - Is the building "old-style" or "new-style" construction?
  - Are there built-in life safety or fire protection features? What are they? Where are they? How do they operate?
  - What are the current occupancy and layout of those parts of the building?
  - Are the floors compartmented?
  - Is the fire floor an open space area that will allow the fire to spread quickly?
- The degree of firefighting success may be measured by the fire officer's knowledge of this information.

Slide 15-5: Old-Style Building

Slide 15-6: Old-Style Characteristics



B. Comparison of old-style and new-style building characteristics

- Old-style building characteristics include:

  * Bearing walls made of masonry;

  * Most bearing walls of reinforced concrete—some unreinforced concrete;

  * A very large mass and operable windows;

  * Less likely to collapse under fire conditions due to mass and supporting nature of the bearing walls;

  * Floors of reinforced concrete and poured along with the walls as the building is constructed; and

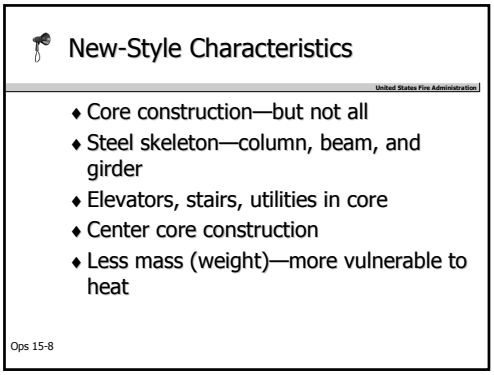
  * Many high-rise buildings have

unreinforced masonry wall construction.

Slide 15-7: New-Style Building

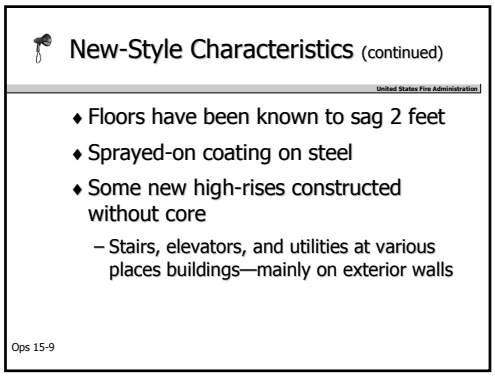
New Style

Slide 15-8: New-Style Characteristics

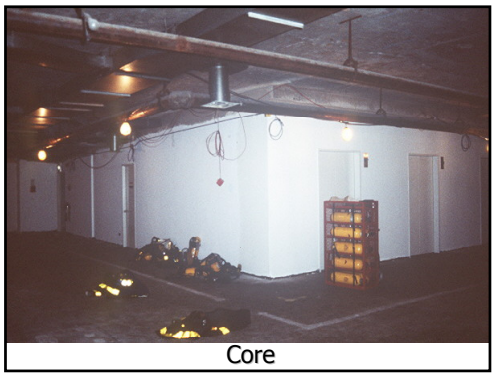


- New-style building characteristics include:
  - Modern methodology is called *core construction*.
  - This construction involves erecting a steel skeleton using a column, beam, and girder system.
  - Elevators, stair shafts, and utility shafts are usually found together, and in newer construction, are in the center of the building (called *center core construction*).
  - Core construction has less mass than old-style and is more vulnerable to heat.

Slide 15-9: New-Style Characteristics (continued)



Slide 15-10: Core

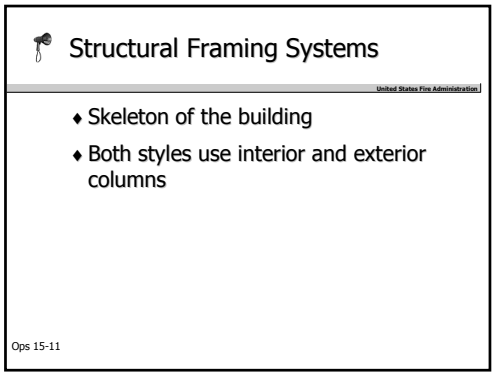

Core

* Floors have been known to sag nearly 2 feet under intense fire conditions.

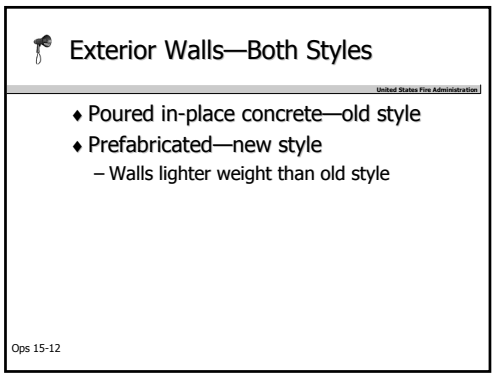
* All noncombustible buildings have a sprayed on coating that assists the structural steel to maintain its strength when heated.

* There are some modern high-rises that are constructed without cores. Stairs, elevators, and utilities are in various places, mainly on exterior walls.

Slide 15-11: Structural Framing Systems



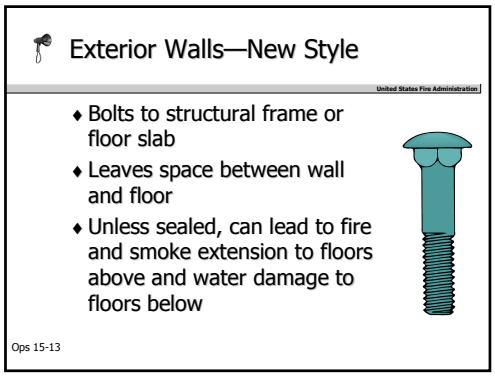
Slide 15-12: Exterior Walls—Both Styles



C. Structural features

- Structural framing systems:
  - Structural framing systems are the skeleton of the building.
  - Both styles use interior and exterior columns to which girders are attached.
  - Girders span the horizontal distance between columns and support structural beams that carry the floor loads.
- Exterior walls—both styles:
  - Exterior walls in old-style construction are poured-in-place concrete and are therefore self-protected.
  - Exterior walls of core style, high-rise buildings are commonly prefabricated.
  - These walls are lighter in weight than those of old-style construction.

Slide 15-13: Exterior Walls-New Style

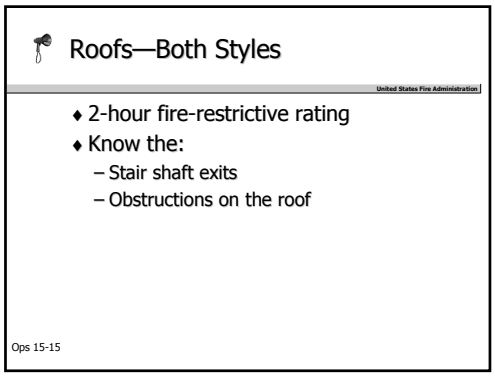


- Exterior wall attachment—new style:
  - Bolts to structural frame or floor slab on clips;
  - Leaves a space between the floor assembly and the wall; and
  - Unless sealed appropriately, can lead to fire and smoke extension (to floors above) and water damage (to floors below the fire floor).

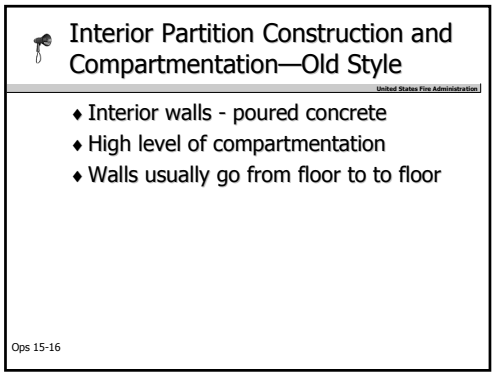
Slide 15-14: Roof

Roof

Slide 15-15: Roofs—Both Styles

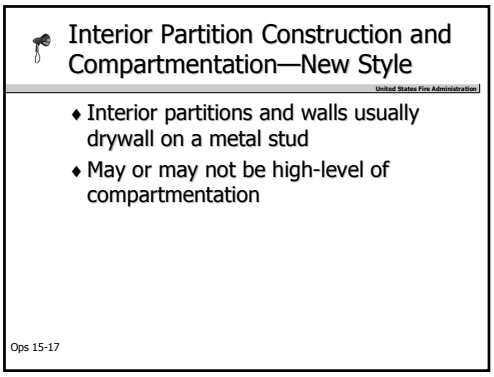


Slide 15-16: Interior Partition Construction and Compartmentation—Old style



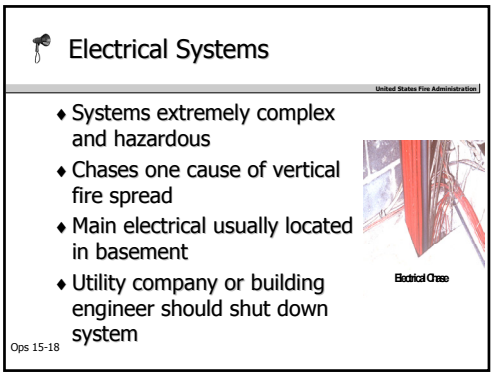
- Roofs—new and old styles:
  - Required to have a 2-hour fire-resistive rating;
  - Pay particular attention to:
    - Stair shaft exits and
    - Obstructions on the roof that would limit activity.
- Interior partition construction and compartmentation
  - In old-style construction:
    - Interior walls are usually poured concrete or concrete block.
    - There is generally a high level of compartmentation.
    - Walls usually go from floor to floor (and therefore provide a high degree of horizontal spread protection).

Slide 15-17: Interior Partition Construction and Compartmentation—New Style



* In new-style construction:
  - Interior partitions and walls are usually made of drywall on a metal stud.
  - There may or may not be a high level of compartmentation.

Slide 15-18: Electrical Systems



III. Building Systems (30 minutes)

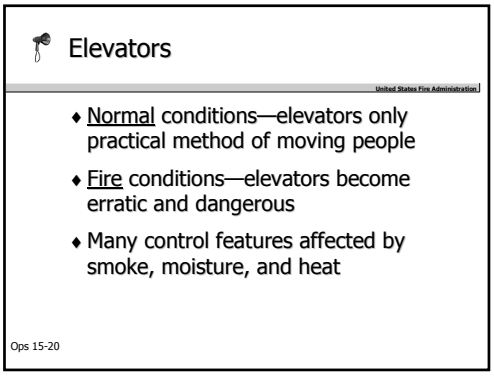
A. Electrical systems

- These systems can be extremely complex and hazardous.
- Electrical chases are one cause of vertical fire spread.
- Main electrical equipment is usually located in the basement.
- A utility company or building engineer should shut down the system.

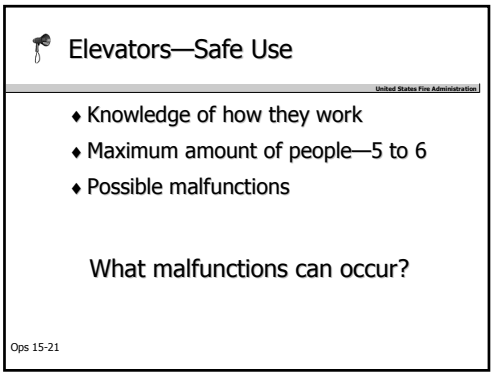
Slide 15-19: Elevator Lobby

Elevator Lobby

Slide 15-20: Elevators



Slide 15-21: Elevators—Safe Use

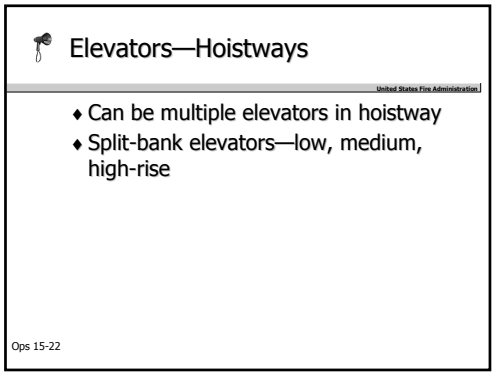


B. Elevators

- Under normal conditions, elevators are the only practical method of moving people.
- Under fire conditions, elevators can become erratic and dangerous.
- Many elevator control features can be affected by smoke, moisture, and heat.
- Safe use of elevators under fire conditions requires:
  - Knowledge of how elevators work;
  - Knowing the maximum amount of personnel to allow into each car to avoid overload—generally five to six people; and

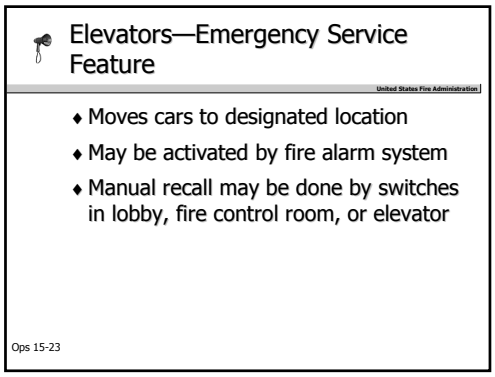
* An understanding of what malfunctions can occur—possible malfunctions can involve:
  - Erratic car movement,
  - The car moving to floor(s) not selected,
  - The car moving to the fire floor,
  - The car coming to a halt, and
  - Doors opening without the Door Open button being pushed.

Slide 15-22: Elevators—Hoistways



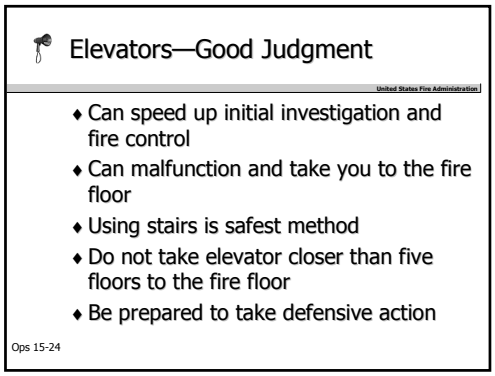
- Hoistways are the vertical shafts in which elevator cars travel:
  * Buildings with multiple elevator cars are usually in a single hoistway.
  * Some high-rise buildings have low, medium, and high-rise bank elevators. These are referred to as split bank elevators.

Slide 15-23: Elevators—Emergency Service Feature



- Most high-rise buildings have an elevator emergency service feature called *firefighter service*:
  - This service will move cars to designated locations when activated (usually the first floor or lobby).
  - Firefighter service may be activated by the fire alarm system.
  - Manual recall may be activated by switches in the lobby, fire control room or the elevator itself.
  - Personnel must never take an elevator that serves all floors to go above the fire floor.

Slide 15-24: Elevators—Good Judgment

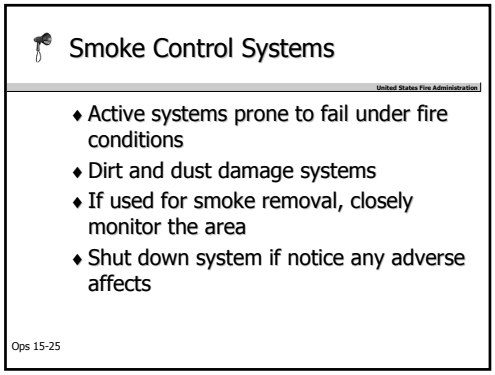


- Use of elevators under fire conditions must be tempered with good judgment:
  - Use of elevators can speed up the initial investigation and fire control efforts.
  - Elevators can malfunction and take firefighters directly to the fire floor.
  - Using stair shafts is the safest method of ascending to the fire floor.
  - Do not take the elevator closer

than five floors below the fire floor.

* Be prepared to take defensive action if the elevator car does not stop at the floor chosen.

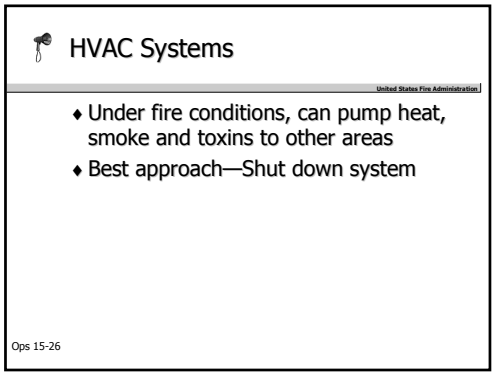
Slide 15-25: Smoke Control Systems



C. Smoke control systems

- Smoke and its toxic products account for more than 80 percent of fire deaths.
- Active smoke control systems are prone to fail during fires. Dirt/dust can damage systems.
- Closely monitor the areas that these systems are designed to clear smoke from.
- In the event of adverse effects, immediately shut down the system.

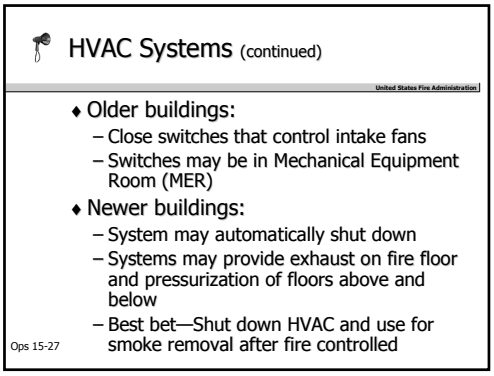
Slide 15-26: HVAC Systems



D. HVAC systems

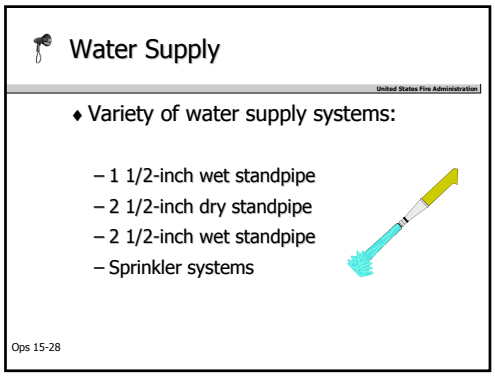
- HVAC systems provide conditioned air throughout the building.
- For efficiency, these systems recirculate most of the air in the building.
- Under fire conditions, these systems can pump heat, smoke, and toxins to other areas.

Slide 15-27: HVAC Systems (continued)

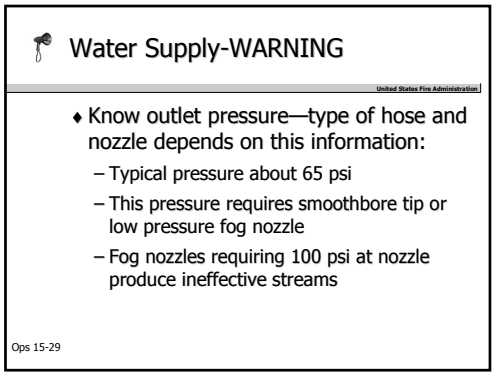


- The best approach is to shut down the HVAC system. The methods of shutting a system down vary.
  - In older buildings:
    - Close switches that control the air intake fans.
    - Switches may be located in Mechanical Equipment Rooms (MERs).
  - In newer buildings:
    - The system may automatically shut down under fire conditions.
    - These new systems may provide exhaust capability on the fire floor and pressurization on the floors above and below.
    - The best solution is to shut down the HVAC and use it for smoke removal after the fire is controlled.

Slide 15-28: Water Supply



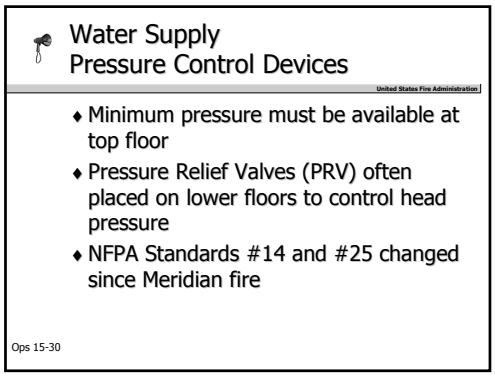
Slide 15-29: Water Supply—WARNING



E. Water supply

- A variety of water supply systems can be found in high-rise buildings:
  - 1 ½-inch wet standpipe,
  - 2 ½-inch dry standpipe,
  - 2 ½-inch wet standpipe, and
  - Sprinkler systems.
- WARNING—know what outlet pressure your system produces to determine the type of nozzle to use—smooth bore or fog:
  - Typical outlet pressure found is approximately 65 PSI.
  - This pressure would require a smooth bore tip or low-pressure fog nozzle.
  - Fog nozzles that require 100 PSI at the nozzle will produce ineffective streams.

Slide 15-30: Water Supply Pressure Control Devices



- Pressure control devices:
  - Since effective pressures must be available at top floors, lower floors need a method of pressure control.
  - This is normally obtained by placing Pressure Reducing Valves (PRVs) at each outlet.

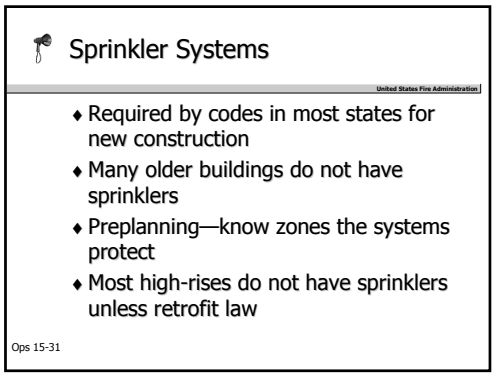
Instructor Notes:

NFPA Standards #14 and #25 have changed since the Meridian high-rise fire. NFPA 14 now requires an outlet pressure of a minimum of 100 psi. The standard allows the "authority having jurisdiction" to require an even greater pressure.

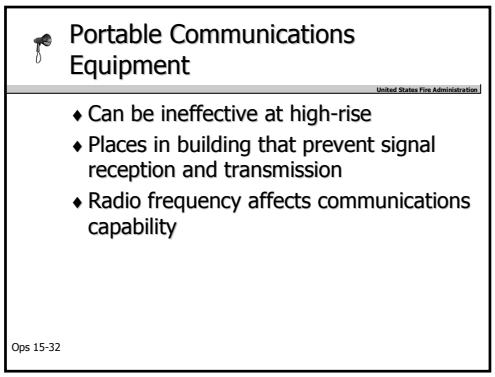
The PRVs are required to be checked once a year. NFPA 25 details the testing procedure. Fire departments should require the building owners to hire a contractor to test the systems and report the findings to the fire department.

Generally, a jurisdiction is required to adopt the latest NFPA Standards as part of its building or fire codes.

Slide 15-31: Sprinkler Systems



Slide 15-32: Portable Communications Equipment



F. Sprinkler systems

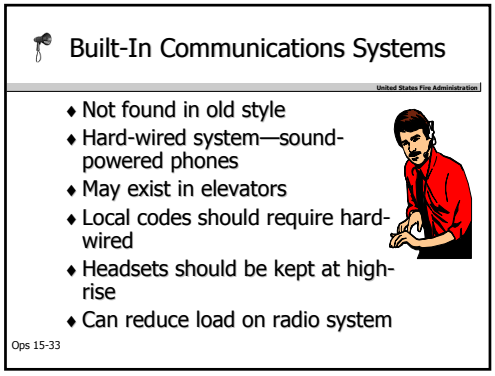
- Sprinklers are now required by code in most states.
- Many older buildings do not have sprinklers.
- Preplanning should take particular note of the sprinkler systems—what areas they serve and how they are supplemented.
- They are not found in most high-rise building, unless there are retrofit ordinances in effects.

G. Communications systems

- Communications is a problem at most fires. At a high-rise fire, this problem can be much worse.
- Good communication is necessary for effective control and life safety operations.
- Portable communications equipment:
  - Portable equipment can be ineffective or unusable at high-rise fires.
  - There are places in high-rises that prevent the reception or transmission of radio signals.
  - The frequency of the radio

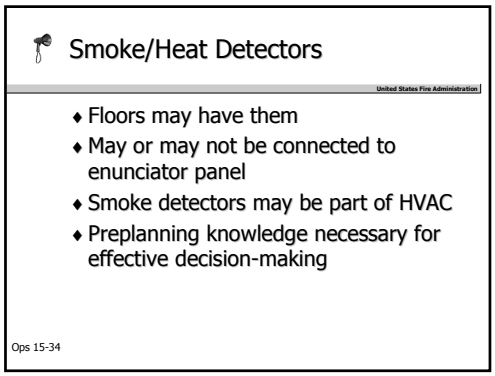
system affects communications capability.

Slide 15-33: Built-In Communications Systems

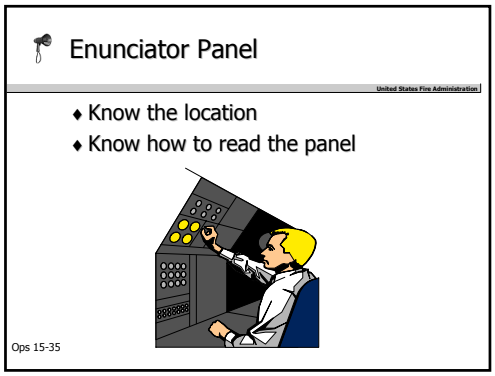


- Built-in communication systems:
  - Built-in systems are not found in old-style buildings.
  - Hard-wired systems with jacks are located at critical locations (for example, stair shafts at floor levels).
  - Built-in systems may exist in elevator cars.
  - Local codes should require these systems in new buildings (as well as retrofitting).
  - Sound-powered headsets should be kept at the high-rise as well as on department apparatus for connecting to these systems.
  - When needed, these systems can be used to reduce the load on the radio system.

Slide 15-34: Smoke/Heat Detectors



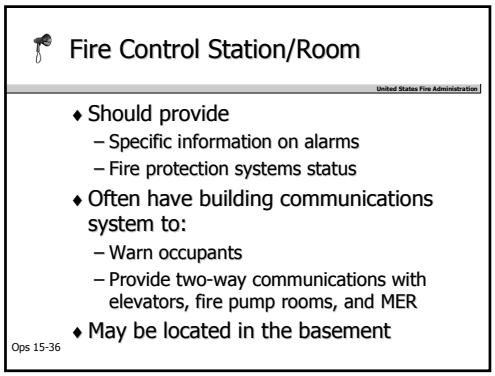
Slide 15-35: Enunciator Panel



H. Detection and alarm systems

- Smoke/heat detectors:
  - The floors in a high-rise building may contain heat or smoke detectors.
  - These may or may not be connected to an enunciator panel.
  - Smoke detectors *may* be a part of the HVAC system and be located in the air shafts. These detectors may then activate fire dampers in the system.
  - Preplanned knowledge of these attributes is necessary for effective decision-making.
- Enunciator panel:
  - It is important to know the location of the enunciator panel.
  - A full understanding of how to “read” the information on the enunciator panel is critical.

Slide 15-36: Fire Control Station/Room



I. Fire control stations/rooms

- Newly constructed high-rises are generally required to have a fire control room. Old-style high-rises do not have these rooms.

- The room should provide, a minimum of:

  * Specific information on alarms that have been activated and

  * Fire protection systems status.

- The rooms, which may be located on the basement level, often have a building communications system to warn building occupants. These systems:

  * Are public address systems;

  * Communicate with occupants on individual floors;

  * Communicate with the fire department; and

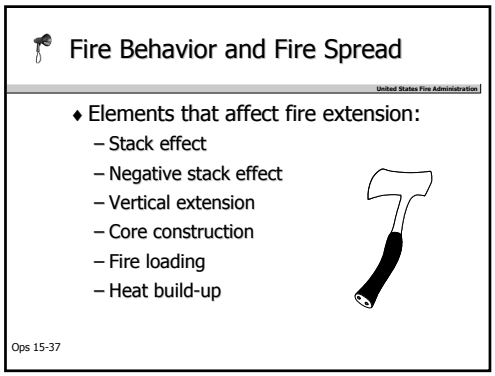
  * Allow two-way communications with:

    – Elevators,

    – Fire pump rooms, and

    – MERs.

Slide 15-37: Fire Behavior and Spread

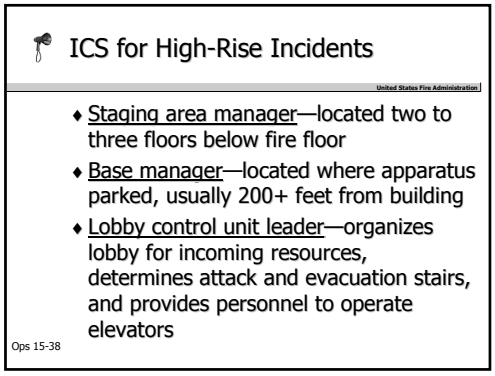


IV. Fire Behavior and Spread (5 minutes)

You should understand the following elements of fire extension:

- Stack effect,
- Negative stack effect,
- Vertical extension,
- Core construction effect,
- Fire loading, and
- Heat buildup.

Slide 15-38: ICS for High-Rise Incidents



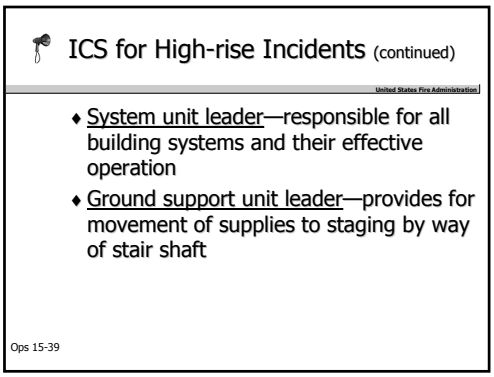
V. ICS for High-Rise Incidents (5 minutes)

There are a few special ICS functions that normally only apply to high-rise incident management. All other functions are the same as for any other incident.

- **Staging area manager—**located two to three floors below the fire floor.
- **Base manager—**location where response apparatus is parked, usually 200 or more feet from the building to avoid falling glass.
- **Lobby control unit leader—** responsible for organizing the lobby area for incoming resources, determining the attack

and evacuation stairs, and providing the personnel to operate the elevators.

Slide 15-39: ICS for High-Rise Incidents (continued)

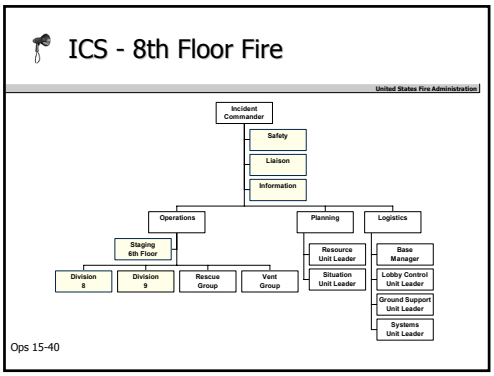


- **Systems unit leader—** responsible for all building systems and their effective operation during the incident; this includes recall of elevators, building communications system, HVAC system, and fire pumps.

- **Ground support unit leader—** responsible to provide for the movement of supplies to staging by way of the stair shafts (formerly called *stairwell support*).

All of these functions are the responsibility of the logistics section chief, with the exception of the staging area manager.

Slide 15-40: ICS—8th Floor Fire



- Typical ICS organization chart for high-rise incidents; the fire is on the 8th floor.

Instructor Notes:

Refer students to Figure 15-1, ICS—8th Floor Fire, in their student manuals. The figure is provided on the following page.

Slide 15-41: Activity 15.1: High-Rise Simulation Exercise

VI. Activity 15.1: High-Rise Simulation Exercise and Debriefing (150 minutes)

Instructor Notes:

Refer students to Activity 15.1, High-Rise Simulation Exercise, in their student manuals.

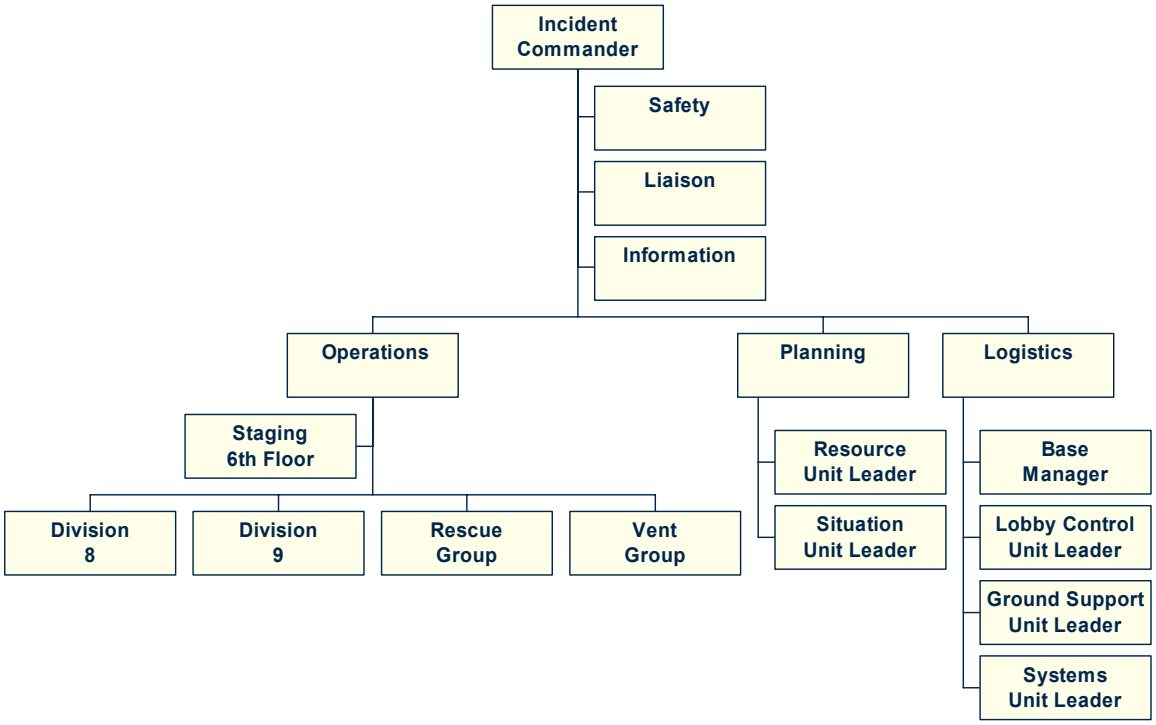


Figure 15-1: ICS—8th Floor Fire

Activity 15.1:
High-Rise Simulation Exercise

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a high-rise incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in the appendix), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups:**

   Each group will staff the positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. **Review the simulation rules:**

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control objectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will identify planning needs using the FOG Position Checklist: develop an alternate plan, collect and record information, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the times listed on each. The time in the upper right corner of each message indicates the

real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

You will play the role of various outside agency representatives and facilities management.

The roles played by an instructor should include:

Building Engineer—Report that the HVAC system was shut down by the fire alarm system. It does not have an exhaust feature. Report that the fire pumps are operating at this time.
Police Supervisor—Make every effort to comply with assistance requests.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening, observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
- Planning Chief: Alternate plan

- Logistics Chief: Resource list
- Safety Officer: Safety message
- Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.
- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

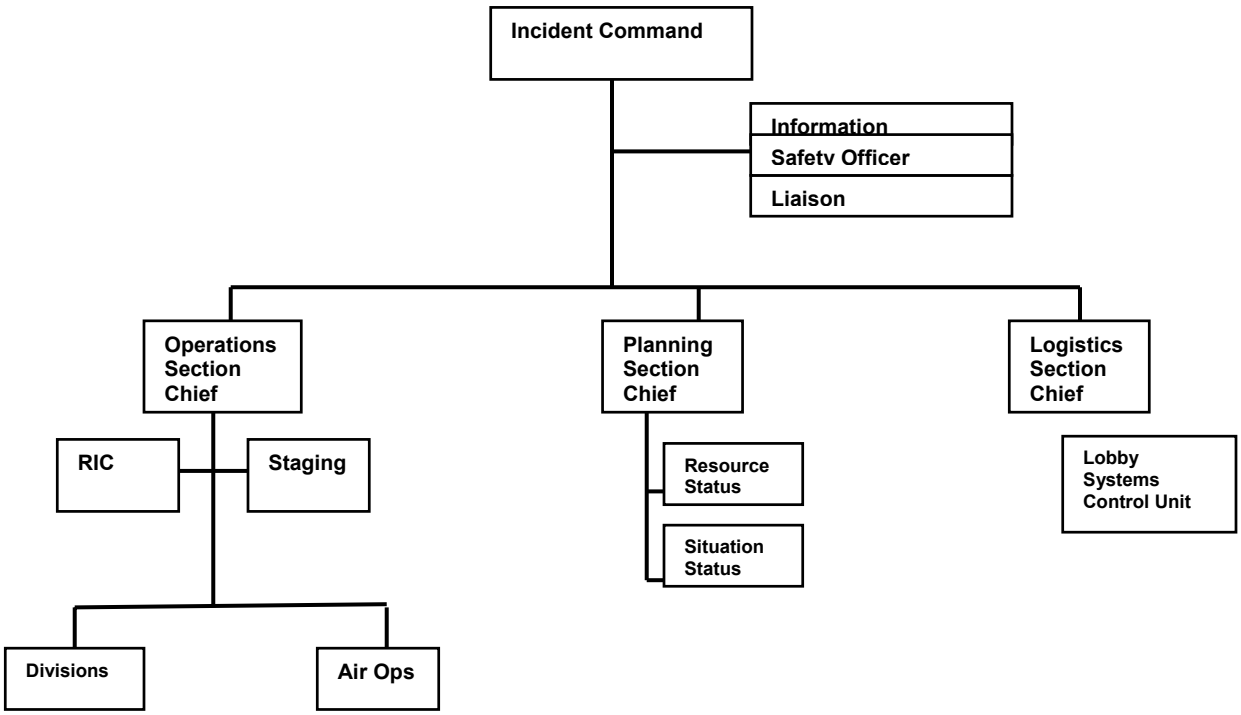
Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and discussing the following questions:

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?

- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Sample Incident Organization

High-Rise Simulation Exercise



Incident overview:

A fire has started on the 8th floor of a 22-story residential high-rise. The fire is fully involving one complete apartment and is threatening to extend into the hallway and to the apartments to either side.

Slide 15-42: Sides A and B

Slide 15-43: Sides B and C

Slide 15-44: Side C

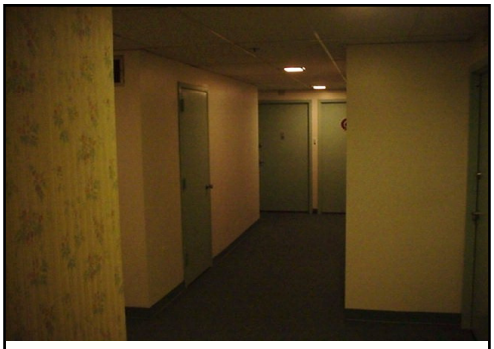
Slide 15-45: Lobby Elevators

Lobby Elevators

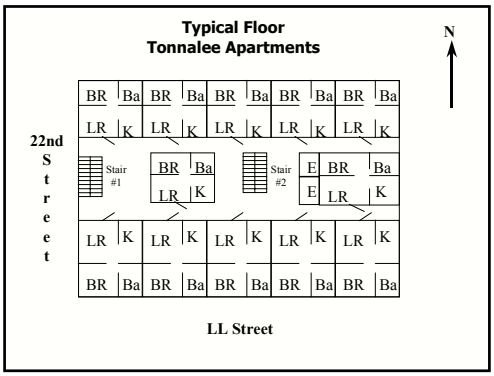
Slide 15-46: Typical Floor

Typical Floor

Slide 15-47: Typical Floor



Slide 15-48: High-Rise Floor Plan



Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

High-Rise
Quick Access Prefire Plan

Building Address: *Tonnalee Apartments - LL Street and 22nd Street*

Building Description:
110' x 75', 22-story, noncombustible, high-rise
Roof Construction:
Prestressed concrete T-beams
Floor Construction:
Poured reinforced concrete with carpet

Occupancy Type:
Elderly High-rise

Initial Resources Required:
1st-alarm assignment

Hazards to Personnel:
Electrical transformer and panel in basement

Location of Water Supply:
Hydrant, 12-inch municipal systems, 600' apart

Available Flow:
1,000 gallons per minute (gpm) per hydrant

	Estimated Fire Flow			
Level of Involvement	25%	50%	75%	100%
Estimated Fire Flow	75	150	225	300

**Fire in one apartment (22' x 24') with two exposures on fire floor and one exposure above. Rounded.*

Fire Behavior Prediction:
Rapid horizontal spread in one apartment, slow vertical spread

Predicted Strategies:
Rescue, Exposures,Confinement, Ventilation

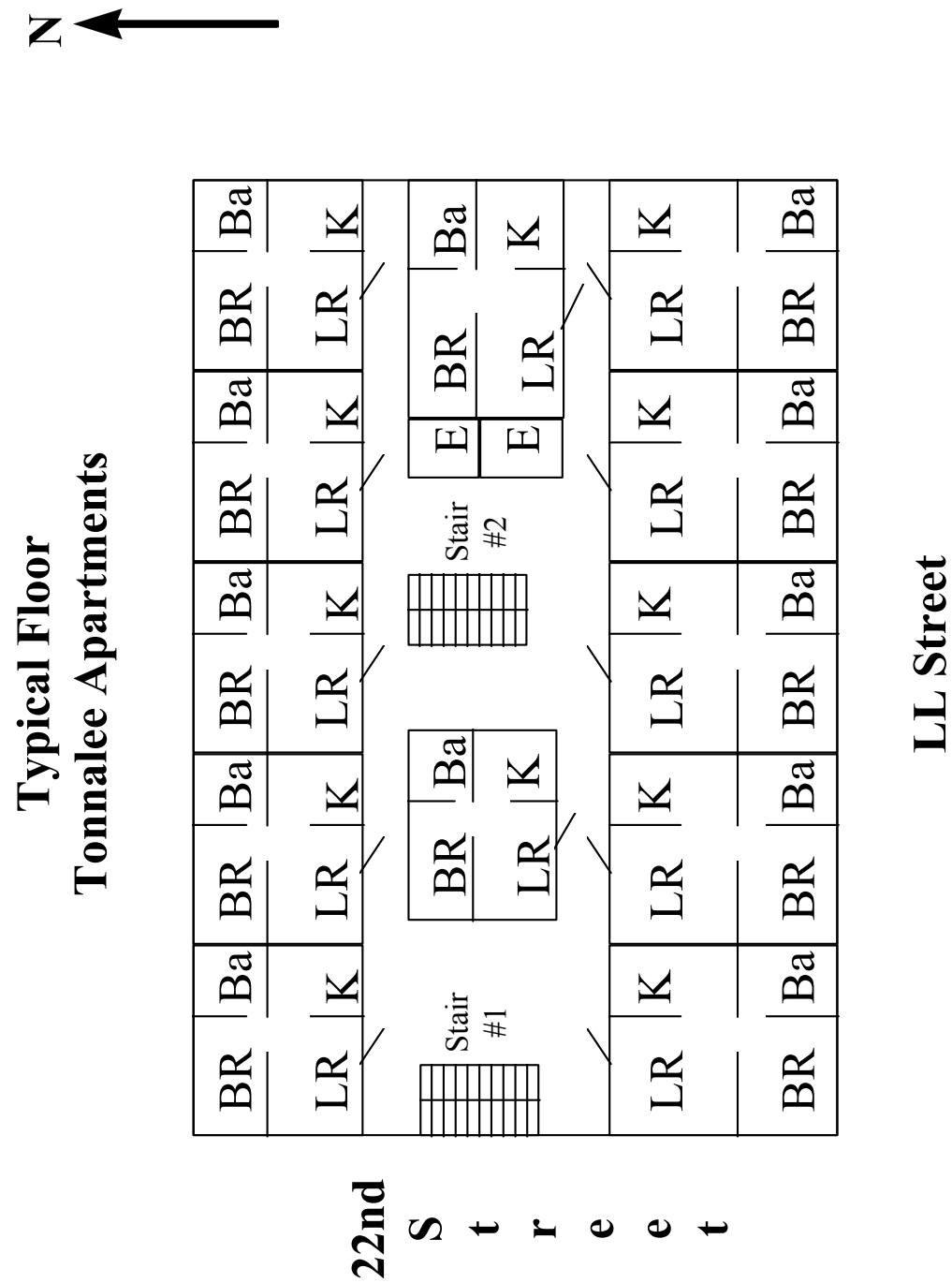
Problems Anticipated:
Large numbers of elderly residents. Resource intensive operations

☒ **Standpipe:**
Yes—both stair shafts

☐ Sprinklers:
No

☐ **Fire Detection:**
Yes

High-Rise Floor Plan



Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card — **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card — **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card — **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card — **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card — **Response time: 20 min.**

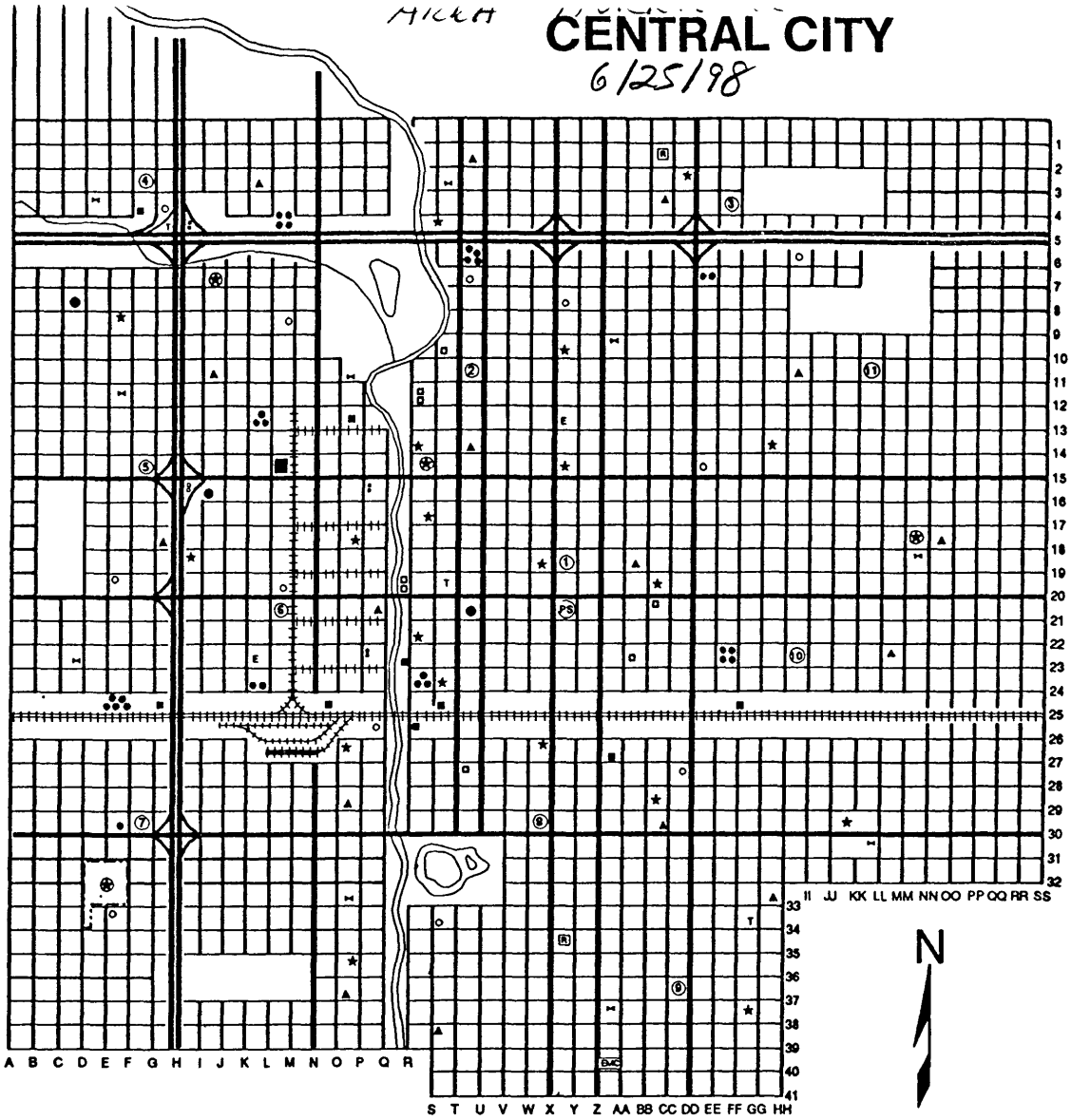
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card — **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card — **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

Instructor Notes:

These messages are examples of possible messages for the incident. You may need to adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 1910 hours**

To: Operations (Battalion Chief)

Message:

At 1900 hours, Tuesday, January 25, dispatch received a report of fire on the 8th floor of the 22-story Tonnalee Apartments at LL and 22nd Streets. The first alarm was dispatched. It is now 1910 hours. Engine 1 has arrived location and reports smoke from the 8th floor on Side A. Engine 1 is tying to the standpipe system. Engine 1's crew is checking the lobby and the annuciator panel in the fire control room. They are getting a lobby phone number. Engine 1 is taking a handline to the fire floor by way of stairway No. 2. Engine 1 ordered a second alarm.

- Truck 1 is assuming lobby control, systems, and base.
- Engine 2 will be advancing to assist Engine 1.
- Engine 3 is going to assume staging.
- Rescue 1 is assuming search and rescue group.
- Paramedic 6 and Medic 1 are assuming medical group.

Slide 15-49: Side A, smoke from 8th floor

Simulation Time: 00:05

SIMULATION MESSAGE

Message #2 **Incident Time: 1925 hours**

To: Operations

Message:

CCFD IMT has arrived on scene and will be briefed by Battalion Chief.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #3 **Incident Time: 1930 hours**

To: Operations

Message:

Engine 1 reports that the 6th floor is okay for staging and that the fire is well-involved in one apartment on the 8th floor. It appears that the apartment door is open. There is extremely high heat in the hallway. Engine 1 is assuming Division 8 and needs 3 additional engine companies and a truck company as soon as possible. Search and rescue group will need four additional companies as soon as possible.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #4 **Incident Time: 1930 hours**

To: Operations

Message:

Second alarm is at base.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #5 **Incident Time: 1932 hours**

To: Operations/Logistics

Message:

Engine 3 is at staging on the 6th floor. They request a third alarm, a medical unit, and additional SCBA cylinders.

Simulation Time: 00:22

SIMULATION MESSAGE

Message #6 **Incident Time: 1935 hours**

To: Logistics

Message:

Many SCBA cylinders and hose packs will be required. Is a ground support unit set up to use the stair shaft for the equipment?

Simulation Time: 00:25

SIMULATION MESSAGE

Message #7 **Incident Time: 1937 hours**

To: Planning

Message:

When will the elevators be available for use to move equipment?

Simulation Time: 00:27

SIMULATION MESSAGE

Message #8 **Incident Time: 1940 hours**

To: Operations

Message:

Second alarm is in staging.

Simulation Time: 00:30

SIMULATION MESSAGE

Message #9 **Incident Time: 1943 hours**

To: Operations

Message:

Division 8 reports that Engine 1 is going to staging. Additional companies are still needed in Division 8.

Simulation Time: 00:33

SIMULATION MESSAGE

Message #10 **Incident Time: 1943**

To: All Command and General Staff

Slide 15-50: Fire on Side A/B

Simulation Time: 00:33

SIMULATION MESSAGE

Message #11 **Incident Time: 1943 hours**

To: Information

Message:

The media is on the scene. Prepare a press release. An instructor will have you present the press release verbally.

Simulation Time: 00:33

SIMULATION MESSAGE

Message #12 **Incident Time: 1943 hours**

To: Operations

Message:

Division 8 reports that Engine 1 is going to staging and have Engine 3 swap jobs with them in order to keep two lines on the fire.

Simulation Time: 00:33

SIMULATION MESSAGE

Message #13 **Incident Time: 1945 hours**

To: Operations

Message:

Search and rescue group (T-1) requests four additional companies as soon as possible. Conditions on the 9th floor are moderate smoke. They are telling residents to stay in their apartments.

Simulation Time: 00:35

SIMULATION MESSAGE

Message #14 **Incident Time: 1948 hours**

To: Operations/Logistics/Planning

Message:

Division 8 reports that they are making some headway on the fire. They now have four hose lines operating. The elevator lobby area on the fire floor is under fire department control. Third alarm is in staging.

Simulation Time: 00:38

SIMULATION MESSAGE

Message #15 **Incident Time: 1950 hours**

To: Liaison

Message:

The water department, power company representatives, and city inspection representative are on location. (See an instructor who will play these roles.)

Simulation Time: 00:40

SIMULATION MESSAGE

Message #16 **Incident Time: 1953 hours**

To: Operations/Logistics/Planning

Message:

Building engineer reports that the basement is getting a lot of water in it. He fears the electric fire pumps may be affected as well as the power transformers.

Simulation Time: 00:43

SIMULATION MESSAGE

Message #17 **Incident Time: 1955 hours**

To: Operations

Message:

Division 8 reports that the fire is being knocked down. A Division 9 must be established to check for extension. Fourth alarm is in staging.

Simulation Time: 00:45

SIMULATION MESSAGE

Message #18 **Incident Time: 1958 hours**

To: Operations/Logistics

Message:

More SCBA cylinders are needed in staging as soon as possible.

Simulation Time: 00:48

SIMULATION MESSAGE

Message #19 **Incident Time: 2000 hours**

To: Operations/Logistics/Planning

Message:

Elevators are available for use to move equipment and personnel to staging.

Simulation Time: 00:50

SIMULATION MESSAGE

Message #20 **Incident Time: 2000 hours**

To: All Command and General Staff

Slide 15-51: Fire under control

Simulation Time: 00:50

SIMULATION MESSAGE

Message #21 **Incident Time: 2003 hours**

To: Operations/Logistics

Message:

Division 8 reports that the fire is under control. They need relief crews to begin overhaul.

Simulation Time: 00:53

SIMULATION MESSAGE

Message #22 **Incident Time: 2005 hours**

To: Operations/Safety

Message:

Medical unit in staging has treated two firefighters for exhaustion.

Simulation Time: 00:55

SIMULATION MESSAGE

Message #23 **Incident Time: 2008 hours**

To: Operations/Logistics

Message:

Search and rescue group reports that they have removed 10 victims from the fire floor. They have taken them to the rehab area. They need medical personnel to check them for smoke inhalation.

Simulation Time: 00:58

SIMULATION MESSAGE

Message #24 **Incident Time: 2010 hours**

To: Operations

Message:

Simulation is complete. Take 10 minutes to recap your activities.

Simulation Time: 01:00

SIMULATION MESSAGE

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Matrix: High-Rise		
Function	**Message # 1**	**Message # 3**
Command	Perform size-up, establish strategy, develop ICS structure.	Continue size-up, monitor progress, adjust strategy if needed. Ensure communications channels are established.
Safety	Enforce safe corridors of operation. Address FF accountability in high-rise operations.	Consider impact of high-rise operations on personnel. Develop safety plan.
Liaison		Identify personal contacts.
Information	Gather incident information.	Gather incident information. Establish press area. Anticipate media interest.
Operations	Determine need for additional resources, assign companies, define tactics. Establish fire ICS operational structure.	Determine need for additional resources. Assign companies, evaluate progress, anticipate future operational needs.
Planning	Anticipate incident progress. Predict resource needs.	Modify plan to meet changing situation. Maintain situation and resource status. Begin documentation process.
Logistics	Establish functions IAW high-rise plan. Anticipate SCBA needs. Consider incident support needs.	Support SCBA requirements. Ensure base, staging, medical, lobby, systems, and ground support units are established. Review medical, traffic, and communications plans.
Administration/ Finance		

Simulation Matrix: High-Rise		
Function	**Message # 5**	**Message # 10**
Command	Continue size-up, monitor progress, adjust strategy to fast-moving incident.	Continue size-up, monitor progress, adjust strategy. Support operations' requests for resources.
Safety	Implement safety plan. Enforce safe corridors of operation. Ensure FF accountability plan in effect.	Enforce safe corridors of operation. Maintain FF accountability system. Consider assistant safety officer at staging.
Liaison	Maintain list of assisting and cooperating agencies.	Brief agency representatives on incident progress.
Information	Develop material for media briefings. Prepare a press report for print media. Obtain media information that may be useful for incident planning.	Conduct media briefings. Make press notifications regarding significant incident. Maintain press area.
Operations	Evaluate operations plan. Maintain contact with companies. Consider additional personnel for relief.	Evaluate operations plan. Maintain contact with companies. Ensure staging, RIC, medical unit (rehab) functions meet operational needs. Consider additional resources.
Planning	Predict incident progress. Document.	Consider action plan modifications due to changing conditions. Maintain situation, resource, and documentation units. Develop demobilization plan.
Logistics	Establish facilities and support incident needs: base, staging, supplies, etc.	Maintain facilities and support incident needs. Review ground support needs to support long-term incident.
Administration/ Finance		Maintain records of outside agency participation.

Simulation Matrix: High-Rise		
Function	**Messages # 14/16**	**Message # 21**
Command	Monitor progress, determine if incident objectives are being met. Support operations' need. Approve demobilization plan.	Monitor progress. Ensure demobilization plan is followed. Debrief command and general staff. Brief agency administrators, city manager, mayor, etc.
Safety	Ensure safe operating conditions and FF accountability systems are enforced. Confront tactical safety issues.	Maintain safe operating conditions during demobilization.
Liaison	Brief IC on assisting and cooperating agency status. Maintain communication with agency representatives.	Brief agency representatives on demobilization plan.
Information	Provide updated information to media. Prepare IC or other command staff for interviews. Provide press report to media	Continue briefings on incident. Update information for print media. File press package in incident documentation.
Operations	Evaluate operations plan effectiveness. Maintain communication with companies. Identify additional needs.	Implement operations portion of demobilization plan. Release companies. Plan for extended salvage and overhaul operations.
Planning	Modify IAP to meet changing situations. Implement demobilization plan.	Complete incident documentation package.
Logistics	Maintain support and supply functions. Evaluate incident needs during demobilization.	Ensure incident needs are met during demobilization. Review logistics portion of demobilization plan. Close out incident.
Administration/ Finance	Collect incident information for department records.	Complete incident records package, file for future reference.

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	

Major Hazards and Risks:

Narrative:

Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Press Questions

What started the fire and where did it start?

_____

_____

How many people have been injured or killed?

_____

_____

How many people have been evacuated from the building?

_____

_____

Is the fire under control at this time? If not, when do you expect it to be under control?

_____

_____

Have you transported any injured people to the hospital, and if so, which hospital were they transported to?

_____

_____

Could this have been an arson fire?

_____

_____

How many response personnel are on location and how many of each type of apparatus?

_____

_____

Activity 15.1:
High-Rise Simulation Exercise
Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a high-rise incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (a second Aide designated for groups with more than 10)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

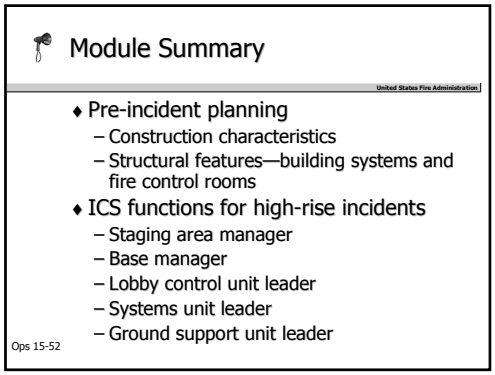
Activity 15.1:
High-Rise Simulation Incident
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Slide 15-52: Module Summary



VII. Module Summary (10 minutes)

Instructor Notes:

Briefly summarize the module and provide an opportunity for students to comment or ask questions.

- Management of high-rise incidents begins with pre-incident planning and knowledge of:
  - Construction characteristics and
  - Structural features, including:
    - Building systems and
    - Fire control stations/rooms.
- Also critical for effective management of high-rise fires is knowledge of fire behavior and spread and ICS functions that normally apply only to high-rise incident management, which are:
  - Staging area manager,
  - Base manager,
  - Lobby control unit leader,
  - Systems unit leader, and
  - Ground support unit leader.

MODULE 15

APPENDIX

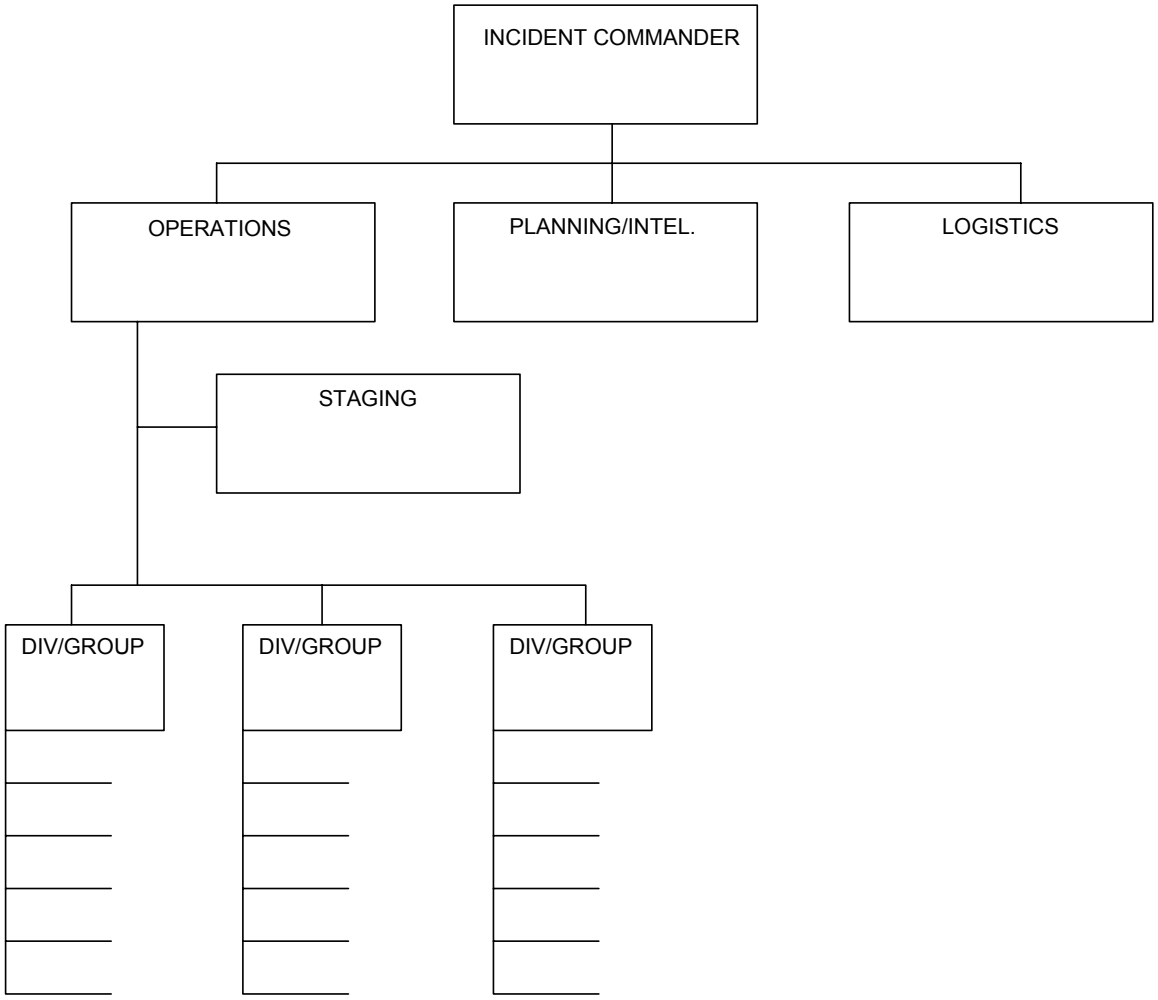
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

MODULE 16

MODULE 16

DORMITORY SIMULATION EXERCISE

MODULE 16:

DORMITORY SIMULATION EXERCISE

Terminal Objective

Upon completing this module, students will be able to apply an appropriate ICS organization to effectively manage a dormitory incident.

Enabling Objectives

Students will:

- Identify the construction features of dormitories;
- Identify firefighting problems inherent in dormitory construction;
- Establish incident objectives;
- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer
- LCD projector

- One portable screen or classroom equipped with screen
- Chalkboard/wipeboard
- Easel pads with markers
- command Worksheets (may use local fire department worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than “normal” first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who makes command level decisions based on strategic objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities. Some of these hazards are significant and are known as target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

Expanded Written Incident Action Plan

This course is designed for battalion chief level officers operating at target hazard incidents that usually do not extend over several operational periods.

However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

The instructor should carefully read the instructor guide and the student manual and become familiar with the content before presenting the course.

The module combines a lecture and simulation for a dormitory incident. Ensure that students understand the management needs, cues, and ICS organization structure needed at dormitory incidents.

Methodology

This module uses lecture, discussion, and a simulation exercise.

Outline

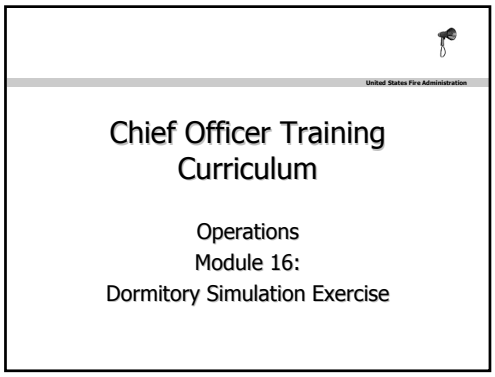
I. Objectives and Overview ..... 5 minutes
II. Ordinary Construction ..... 15 minutes
III. Noncombustible Construction Features ..... 15 minutes
IV. Firefighting Problems in Noncombustible Construction ..... 15 minutes
V. Mixed Construction ..... 10 minutes
VI. Life Safety/Fire Training/ Fire Prevention Principles of Dormitories ..... 20 minutes
VII. Activity 16.1: Dormitory Simulation Exercise and Debriefing ..... 150 minutes
VIII. Module Summary ..... 10 minutes

240 minutes

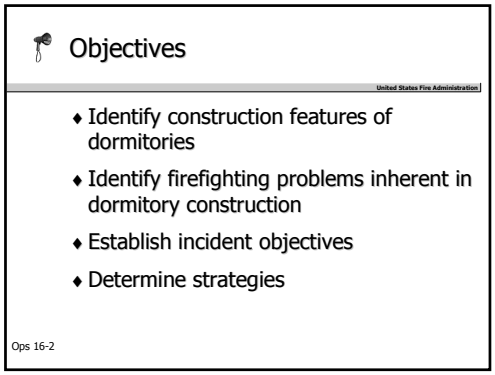
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

Slide 16-1: Module 16, Dormitory Simulation Exercise



Slide 16-2: Objectives



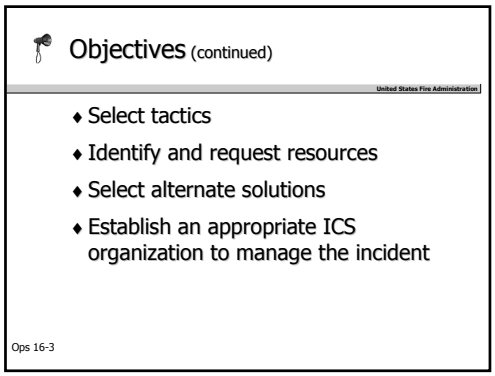
I. Objectives and Overview (5 minutes)

A. Objectives

Students will be asked to:

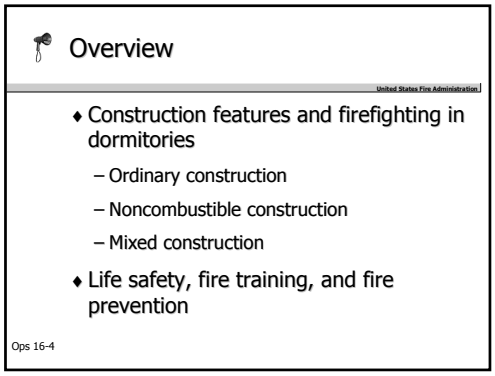
- Identify the construction features of dormitories;
- Identify firefighting problems inherent in dormitory construction;
- Establish incident objectives;
- Determine strategies;

Slide 16-3: Objectives (continued)



- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Slide 16-4: Overview

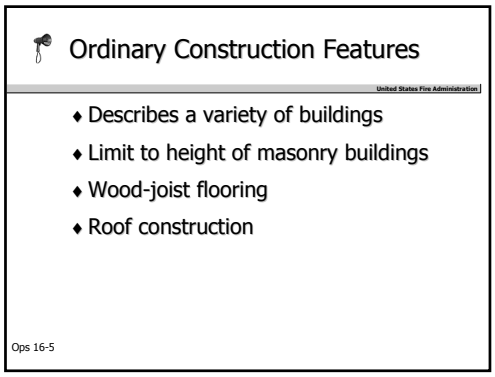


B. Overview

Before we begin the simulation exercise, we will discuss the following topics:

- Construction features and firefighting in dormitories, including:
  - Ordinary construction,
  - Noncombustible construction, and
  - Mixed construction.
- Life safety, fire training, and fire prevention principles for dormitories.

Slide 16-5: Ordinary Construction Features



II. Ordinary Construction (15 minutes)

A. Ordinary construction features

- The chief characteristic is that the walls are masonry construction. They often have wood-frame members.

- There are limits to the height of masonry buildings:

  * The usual rule is that the solid masonry walls will be 12 inches thick for the first 35 feet of height and increase in thickness 4 inches for each additional 35 feet or fraction in height.

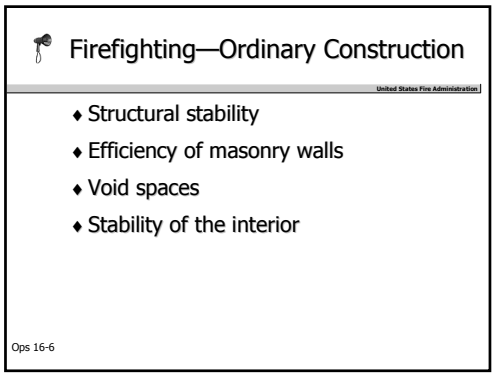
  * Buildings rarely exceed six stories in height.

  * The tallest old-style masonry building in the United States is 15 stories; it is located in Chicago, Illinois.

- Wood-joist flooring—simple beams spanning from wall to wall, joists usually running parallel to the street frontage of the building.

- Roof construction—may be similar to floor in construction; may have a peak because of rafters or simple trusses.

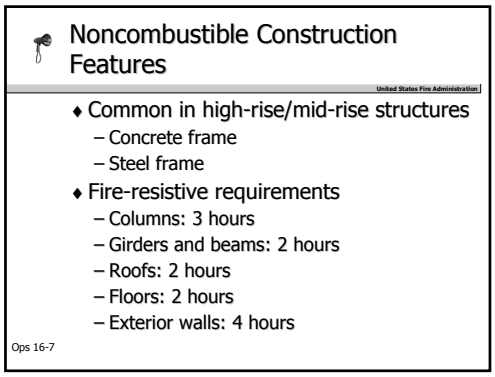
Slide 16-6: Firefighting—Ordinary Construction



B. Firefighting problems

- Many masonry walls collapse during fires. Indicators of probable collapse include these three factors:
  - Structural instability,
  - Collapse of floor or roof, and
  - Retained water that increases the load on the wall.
- Masonry walls can be effective barriers to fire extension if there are no void spaces.
- Void spaces, though, are inherent in ordinary construction and may be increased by building alterations.
- Interior masonry walls are load-carrying structures.
  - Interior columns, girders, and beams provide stability during fires. However, masonry walls are not present in attic space.
  - Combustible attics may provide paths by which fire passes over the tops of masonry walls.

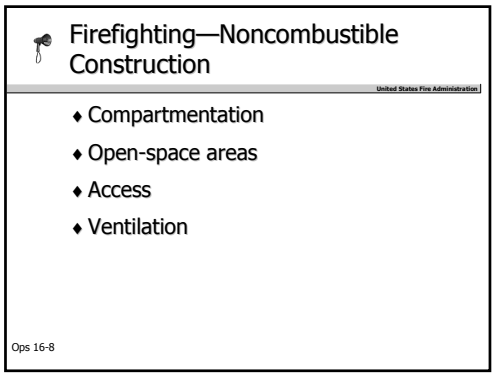
Slide 16-7: Noncombustible Construction Features



III. Noncombustible Construction Features (15 minutes)

- Noncombustible construction features are commonly found in high-rise/mid-rise structures. (The concept and function of these frames are the same regardless of construction:
  - Concrete frame—old style;
  - Steel frame—modern style; and
  - The concept and function of these frames are the same regardless of construction.
- Fire-resistive requirements:
  - Columns—3 hours;
  - Girders and beams—2 hours;
  - Roofs—2 hours;
  - Floors—2 hours; and
  - Exterior walls—4 hours.

Slide 16-8: Firefighting—Noncombustible Construction



IV. Firefighting Problems in Noncombustible Construction (15 minutes)

A. Compartmentation

- In noncombustible construction, each floor is divided into several small units.
- Partitions must go from floor to floor to be fully effective.
- If each floor is not fully divided, the fire can spread throughout the open plenum areas.

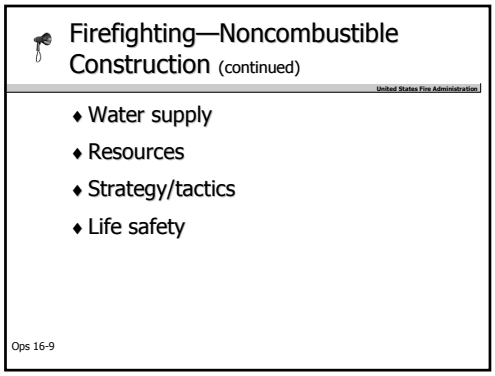
B. Open-space areas

- Open space around a core area of the structure may spread the fire.
- Open space areas found in mid-rise and high-rise dormitories are often occupied as student lounge areas or game rooms.

C. Access

- Ground level access is normally not a problem.
- Access to upper floors may be questionable because of limited use of elevators and time required to walk up the stairs.

Slide 16-9: Firefighting—Noncombustible Construction (continued)



D. Ventilation

- Ventilation can be extremely difficult and time-consuming.
- The understanding of Heating, Ventilating, and Air Conditioning (HVAC) systems is critical.
- The understanding of the stairwell configuration and pressurization capability is also very important.
- In addition, consider problems that falling glass may cause.

E. Water supply

- The water supply may be dependent on the system built into the building.
- Systems may be vandalized or tampered with.

F. Resources

- Mid-rise and high-rise buildings demand much greater resources for firefighting.
- Consider time and distance factors.

G. Strategy and tactics

- Strategy and tactics require well-

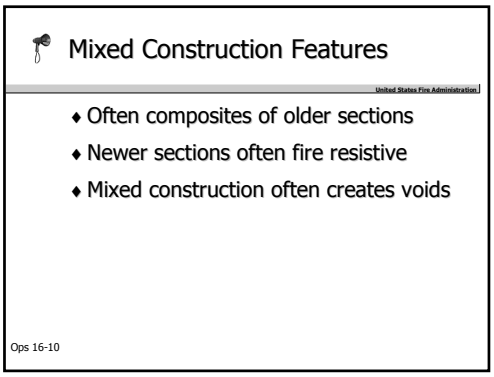
defined Standard Operating Guidelines (SOGs).

- Consider firefighters' limitations.
- Most fires will be labor intensive.

H. Life safety

- There is a great potential for high loss of life.
- Total evacuation may be difficult.
- Consider using resident assistants to help evacuate residents.

Slide 16-10: Mixed Construction Features



V. Mixed Construction (10 minutes)

A. Often composites of older sections

- Older sections may be frame or ordinary construction.
- They may be combined with newer sections of steel or concrete construction, or modern ordinary construction, which contains more noncombustible components.

B. Newer sections

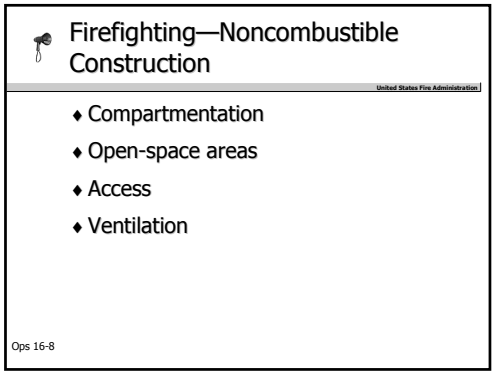
- Newer sections are often fire resistive.
- Combining old and new sections may compromise the newer

section, particularly when the architect wishes to meld the two sections to look like one building.

C. Mixed construction creates large voids

- Voids are often created when new additions are added to existing construction.
- Blind, covered-up stairwells or shaft ways are common.
- An alert fire department can present a convincing analysis of the total fire problem and take steps to prevent large fire losses before they occur.

Slide 16-11: Firefighting—Mixed Construction



D. Firefighting similar to ordinary construction

Problems include:

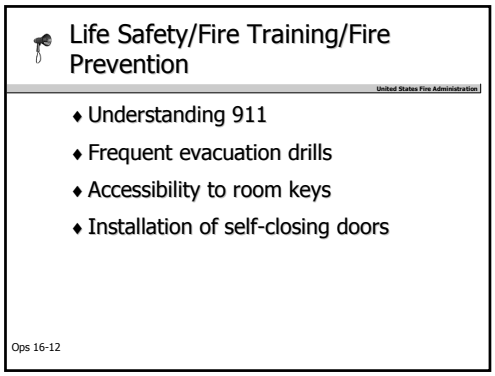
- Concealed void spaces,
- Lack of proper compartmentation, and
- Common lofts or attics.

Instructor Notes:

The following portion of the lecture is intended to reinforce the need for all fire departments to analyze their current approaches to life safety procedures, fire

training procedures, and fire prevention principles at dormitory fires.

Slide 16-12: Life Safety/Fire Training/Fire Prevention



VI. Life Safety/Fire Training/Fire Prevention Principles of Dormitories (20 minutes)

A. Understanding 911

- Thoroughly investigate any delay in an emergency and take action to avoid delays in the future.
- All dormitory students and residential assistants should fully understand the proper method for reporting fires.

B. Frequent evacuation drills

- Fire evacuation drills should be held on a regular basis (monthly, if possible).
- Students and resident assistants should be given instructions at the beginning of the school year on the proper procedures to follow if a fire is discovered.
- Continual fire education sessions for students and resident assistants should be held periodically throughout the school year.

Slide 16-13: Life Safety/Fire Training/Fire Prevention (continued)

C. Accessibility to room keys

- A lock box that can be accessed by resident assistants and fire personnel during an emergency should be kept on each floor.
- If no lock box is installed at each floor, keys must be available at the main security desk at all times.

D. Installation of self-closing doors

- All interior doors should be self-closing and frequently checked to ensure the doors are not blocked open.
- Exit doors should have panic-hardware installed.

E. Installation of sprinklers and smoke detectors

- Sprinklers should be installed in all dormitory occupancies.
- Concealed spaces should be considered when sprinklers are installed.
- Smoke detectors should be installed and tested regularly.

F. Limit highly combustible interior decorations

- Students often contribute to the interior fire load.
- Fishnet decorations, blankets on ceilings, and large posters hanging on the walls and windows are common fire hazards and should be discouraged.
- Unannounced inspections will help prevent these practices.

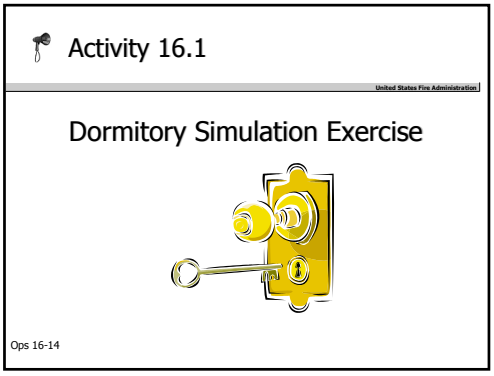
G. Inspect and test local alarm systems several times a year.

H. Changing fire safety attitudes

- Changing fire safety attitudes is an ongoing challenge for all fire departments that have dormitories within their communities.
- Changing the attitudes of students and college officials is an ongoing educational goal.
- Periodically conducting simulations of fire incidents will help raise the level of awareness for all students and school officials.
- It also will prepare the fire department members to be more cognizant of the potential

problems they will face during a true emergency at a dormitory.

Slide 16-14: Activity 16.1: Dormitory Simulation Exercise



VII. Activity 16.1: Dormitory Simulation Exercise and Debriefing (150 minutes)

Instructor Notes:

Refer students to Activity 16.1, Dormitory Simulation Exercise, in their student manuals.

Activity 16.1:
Dormitory Simulation Exercise

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a dormitory incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in the appendix), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups:**

   Each group will staff the positions within the ICS of the Central City Fire Department

(CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. **Review the simulation rules:**

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control objectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will identify planning needs using the FOG Position Checklist: develop an alternate plan, collect and record information, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the

times listed on each. The time in the upper right corner of each message indicates the real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening, observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
- Planning Chief: Alternate plan
- Logistics Chief: Resource list
- Safety Officer: Safety message
- Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.

- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

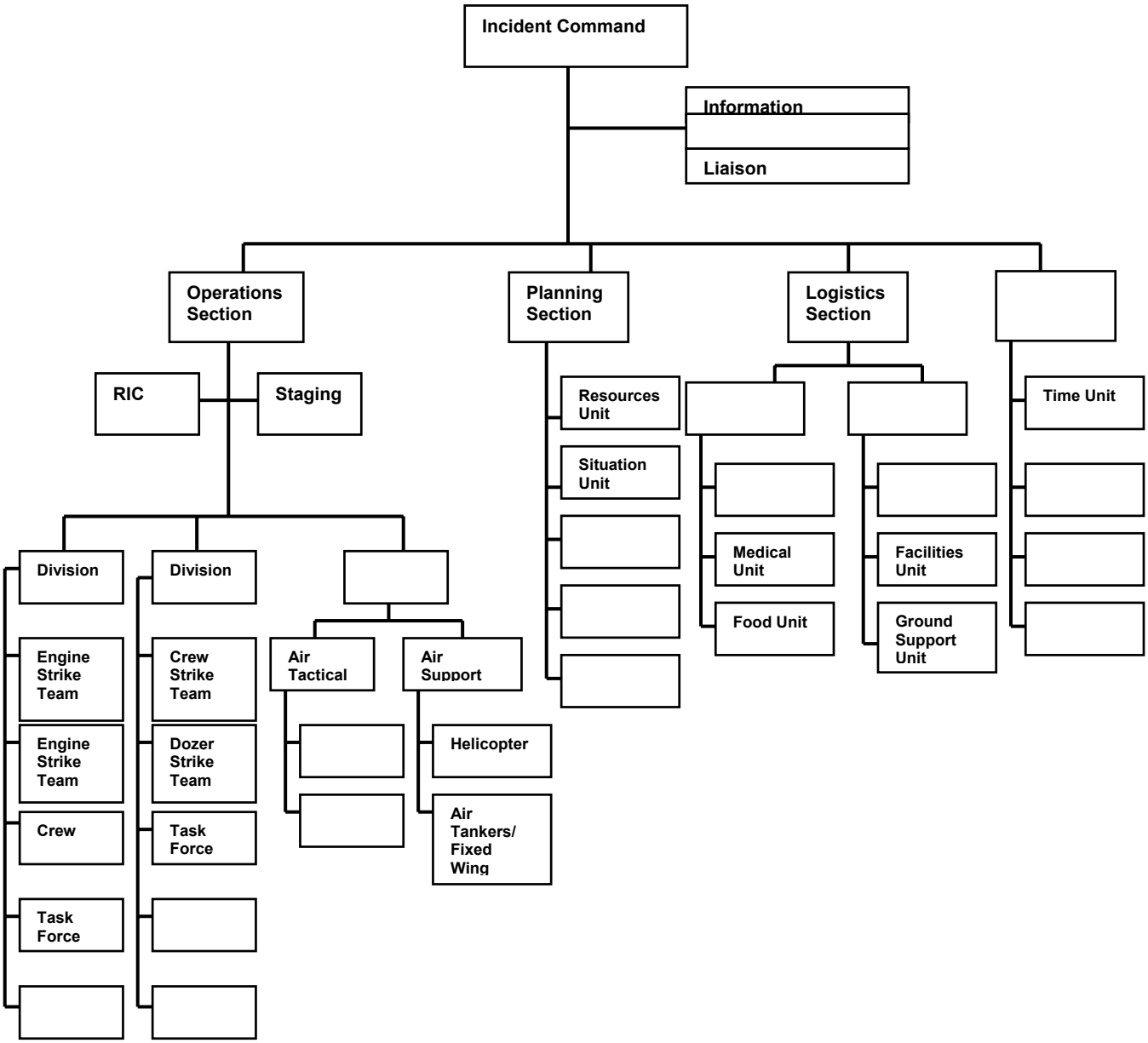
Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and discussing the following questions:

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?

- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Sample Incident Organization

Dormitory Simulation Exercise



Incident overview:

Occupancy is a five-story university dormitory building with the first floor partially underground. Initially, the fire is located on the 1st floor of the building, which is of ordinary (balloon) construction, 75' x 200'. The 1st floor, Side D area is occupied as a storage locker area for students' personal belongings. The 2nd, 3rd, 4th, and 5th floors are occupied as student dormitory rooms. Each dormitory room and hallway has a smoke detector. The building is not equipped with a sprinkler system. Student occupancy is three students per room. Sixty students occupy each floor. There are three exit stairways located on Side A. A similar dormitory building connects on Side B. There are access doors between the two buildings on each floor.

The fire was reported at 0645 hours on a Sunday morning in November. The outside temperature is 34°F (1.1°C). Upon arrival, the IC finds students inside and outside the dormitory building. The custodian reports that the fire is in the 1st-floor locker storage area.

Slide 16-15: Side A exposure, no vehicle access to Side A of building

Slide 16-16: Side B Exposure

Slide 16-17: Side D Exit Door

Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

Dormitory

Quick Access Prefire Plan

Building Address: *240 30th St.*

Building Description:
Five-story/ordinary (balloon) construction 75' x 200' with two-story attachment in rear L-shaped design.
Roof Construction:
Ridgepole and rafter, 1" x 6" sheathing, slate roof gable with dormers.
Floor Construction:
Beam and joist, 1" x 6" sheathing, hardwood floors.

Occupancy Type:
College dormitory.

Initial Resources Required:
1st-alarm assignment.

Hazards to Personnel:
First-floor storage lockers.

Location of Water Supply:
Hydrant, 8-inch municipal system 300' apart.

Available Flow:
1,200-gpm per hydrant.

	Estimated Fire Flow			
Level of Involvement	25%	50%	75%	100%
Estimated Fire Flow in gpm	250	500	750	1,000

**Fire flow based on common area (lobby and hallways) of 1,500 sq. ft. with 4 exposure floors.*

Fire Behavior Prediction:
Rescue, confinement, ventilation.

Predicted Strategies:
Rescue, confinement, extinguishment, ventilation, salvage.

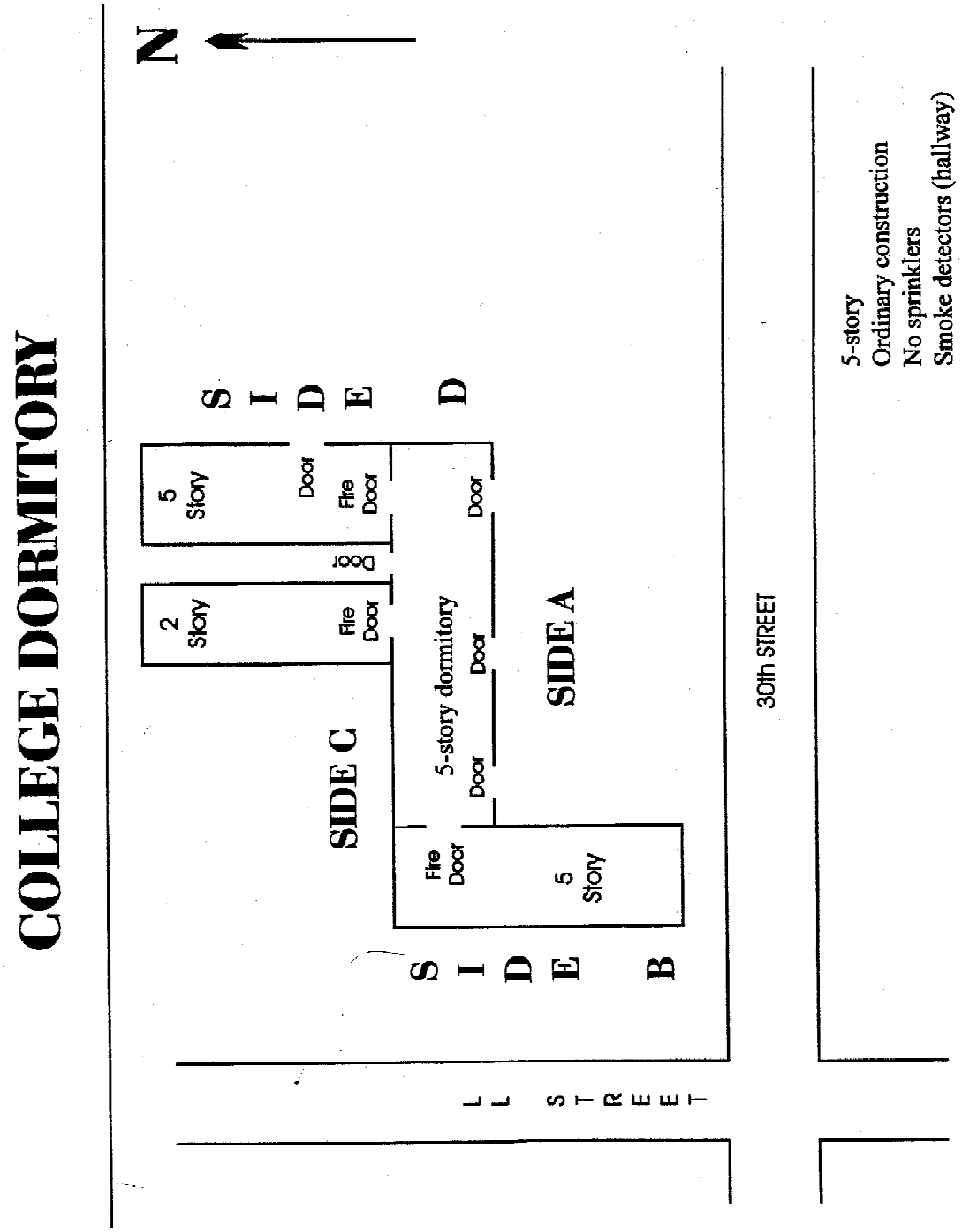
Problems Anticipated:
60 students per occupied floor--3 students per room.

☐ **Standpipe:**
N/A

☐ **Sprinklers:**
N/A

☒ **Fire Detection:**

COLLEGE DORMITORY PLOT PLAN



Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card **Response time: 20 min.**

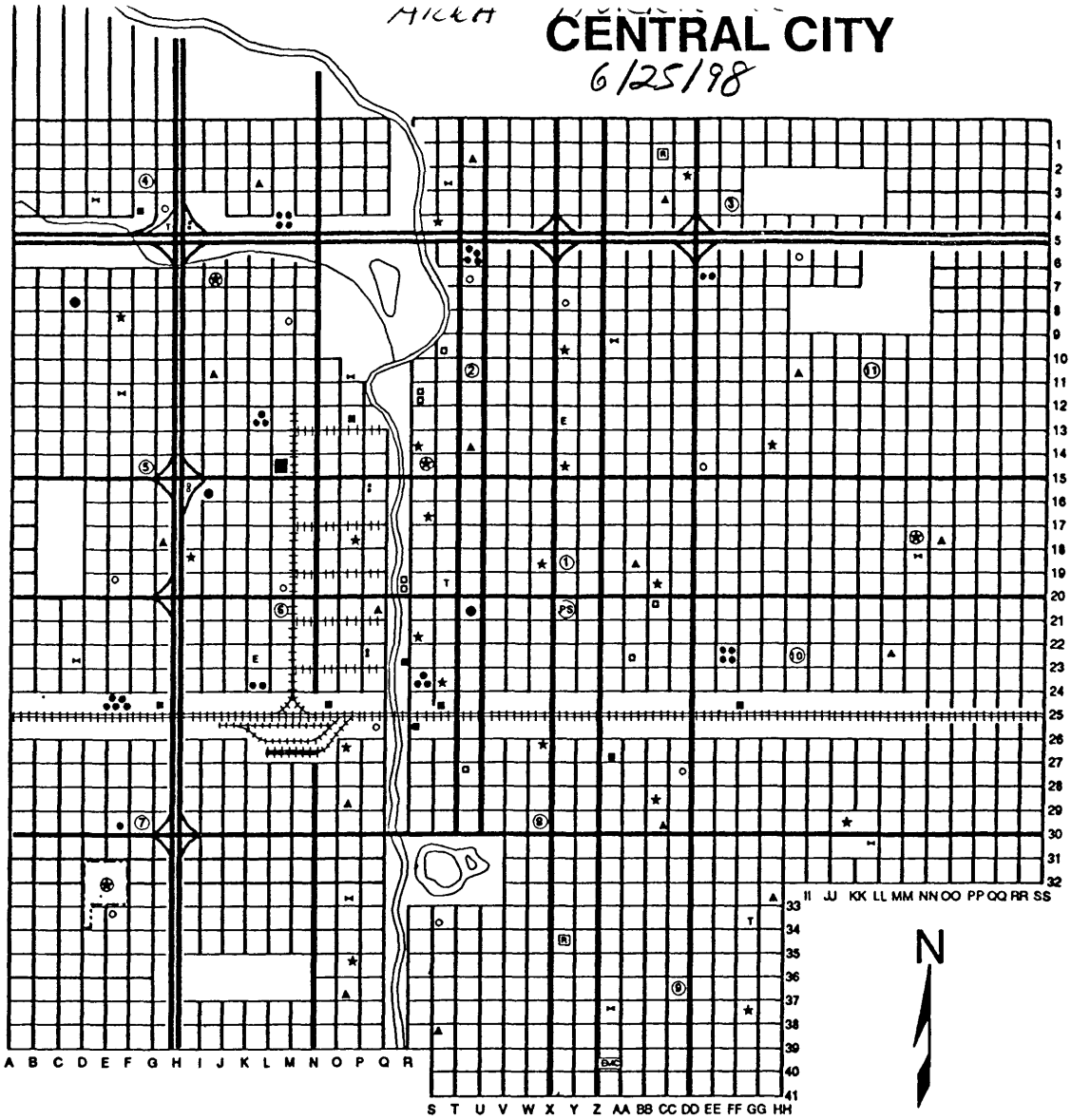
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

Instructor Notes:

These messages are examples of possible messages for the incident. You may need to adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 0655 hours**

To: Dispatch/Battalion Chief 1

Message:

A fire is reported in a Columbia State University dormitory building at 0645 hours on Sunday, November 24th. It is 34°F, and the wind is out of the south at 10 mph. Upon arrival, Engine 1 reports a five-story dormitory building of ordinary (balloon) construction, 60' x 200', occupied. There is heavy smoke showing from all floors. The custodian reports that there is fire in the 1st-floor storage lockers on Side D. The 1st floor is used for storage only.

The report states that 240 students are registered in the building. Sixty are assigned to each floor. There are fire doors to the adjacent dormitory on each floor, but often the doors are blocked open. There were 50 students outside upon our arrival, many showing signs of smoke inhalation.

Engine 1 is establishing Division 1 and is developing a 1 ¾-inch line for fire attack on the 1st floor on Side D. Truck 1 has been assigned as a search and rescue group for the 2nd and 3rd floors. Engine 2 has been assigned as a search and rescue group for the 4th and 5th floors. Engine 3, Squad 1, Rescue 3, MSU 6, and ALS Ambulance 2 have not yet been assigned. I have requested the second alarm.

Slide 16-18: Front and rear view

Simulation Time: 00:05

SIMULATION MESSAGE

Message #2 **Incident Time: 0705 hours**

To: Operations

Message:

CCFD Incident Management Team has arrived on the scene and will be briefed by the Battalion Chief 1.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #3 **Incident Time: 0707 hours**

To: Operations/Logistics/Liaison

Message:

3rd floor search and rescue group reports three unconscious victims were found on the 3rd floor. Need EMS support and help to remove victims. Need fresh air bottles.

Simulation Time: 00:17

SIMULATION MESSAGE

Message #4 **Incident Time: 0710 hours**

To: Operations/Planning

Message:

Second alarm companies are in staging.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #5 **Incident Time: 0711 hours**

To: Operations/Safety/Planning

Message:

Division 1 reports all visible fire knocked down in storage area on the 1st floor; however, vertical extension is probable. It appears that this building is of balloon construction. There was heavy fire in five storage lockers on Side D, 1st floor.

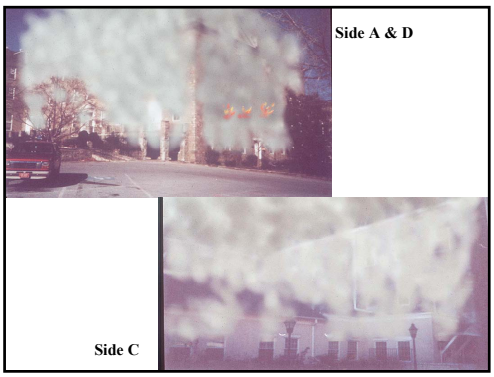
Simulation Time: 00:21

SIMULATION MESSAGE

Message #6 **Incident Time: 0713 hours**

Alert all Incident Command Team members.

Slide 16-19: Fire showing from 2nd-floor windows



Simulation Time: 00:23

SIMULATION MESSAGE

Message #7 **Incident Time: 0714 hours**

To: Operations/Logistics/Liaison

Message:

5th floor search and rescue group reports six unconscious students found on the 5th floor. Need EMS support and additional help to remove students. Need fresh air bottles.

Simulation Time: 00:24

SIMULATION MESSAGE

Message #8 **Incident Time: 0715 hours**

To: Liaison/Planning/Logistics

Message:

Police commander has arrived at the command post. What do you want police to do? Power and gas companies have arrived on the scene.

Simulation Time: 00:25

SIMULATION MESSAGE

Message #9 **Incident Time: 0717 hours**

To: Operations/Liaison/Planning

Message:

Resident advisors indicate that approximately 120 students were in the building at the time of the fire. Apparently, many students were on holiday break.

Simulation Time: 00:27

SIMULATION MESSAGE

Message #10 **Incident Time: 0718**

To: Operations/Safety/Planning

Message:

5th floor search and rescue group reports increasing heat conditions on the 5th floor, but they cannot locate any fire.

Simulation Time: 00:28

SIMULATION MESSAGE

Message #11 **Incident Time: 0721 hours**

To: Liaison/Information Officer/Incident Commander

Message:

College president and media have arrived on scene. The press has reports of student fatalities. They are requesting an interview immediately. Prepare a written press release.

Simulation Time: 00:31

SIMULATION MESSAGE

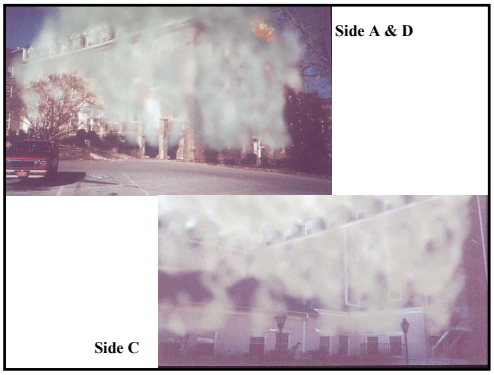
Message #12 **Incident Time: 0723 hours**

Alert all Incident Command Team members.

Message:

Division 2 reports all fire knocked down on 2nd floor, but vertical extension is possible.

Slide 16-20: Fire showing from 5th-floor windows



Simulation Time: 00:33

SIMULATION MESSAGE

Message #13 **Incident Time: 0730 hours**

To: Operations/Planning/Liaison

Message:

2nd and 3rd floor search and rescue group reports primary search of 2nd and 3rd floors is complete. No additional victims found.

Simulation Time: 00:40

SIMULATION MESSAGE

Message #14 **Incident Time: 0735 hours**

To: All Incident Command Team members

Message:

Division 5 reports all fire knocked down on 5th floor. Checking for extension into the cockloft. There are still medium smoke conditions on the 5th floor. Need additional air bottles.

Slide 16-21: Medium smoke conditions on 5th floor

Simulation Time: 00:45

SIMULATION MESSAGE

Message #15 **Incident Time: 0736 hours**

To: Operations/Safety/Logistics

Message:

Division 5 reports partial ceiling collapse of plaster and lath—three firefighters struck. Need EMS help.

Simulation Time: 00:46

SIMULATION MESSAGE

Message #16 **Incident Time: 0740 hours**

To: Operations/Safety/Logistics

Message:

Division 1 reports one firefighter on 1st floor is experiencing chest pains. Need EMS help.

Simulation Time: 00:50

SIMULATION MESSAGE

Message #17 **Incident Time: 0742 hours**

To: Operations/Planning/Liaison

Message:

4th and 5th floor search and rescue group report primary search is complete. No additional victims found.

Simulation Time: 00:52

SIMULATION MESSAGE

Message #18 **Incident Time: 0745 hours**

To: Incident Commander

Message:

Simulation complete. Take 10 minutes to recap activities.

Simulation Time: 00:55

SIMULATION MESSAGE

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Matrix: College Dormitory		
Function	**Message # 1**	**Message # 3**
Command	Perform size-up, establish strategy, develop ICS structure.	Support operations' requests for resources.
Safety	Review special considerations (type of structure/contents/equipment/use).	Enforce safe corridors of operation. Confront tactical safety.
Liaison	Identify personal contacts. Identify shelter and/or relocation sites.	Maintain communication with agencies. Identify shelter and/or relocation sites.
Information	Gather incident information.	Gather incident information. Establish media staging area.
Operations	Deploy companies. Define tactics. Determine need for additional resources. Establish fire/EMS ICS operational structure.	Determine need for additional resources. Evaluate progress of operations.
Planning	Develop action plan. Predict incident progress. Predict resource needs.	Predict resource needs. Maintain situation and resource status records.
Logistics	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims).	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish facilities and support for relocation and shelters.
Administration/ Finance		Document injuries and deaths.

Simulation Matrix: College Dormitory		
Function	**Message # 5**	**Message # 10**
Command	Consider adjusting strategy.	Consider adjusting strategy. Support operations' requests for resources.
Safety	Consider structural integrity. Confront tactical safety. Review special considerations (type of structure/contents/equipment/use).	Enforce safe corridors of operation. Confront tactical safety.
Liaison	Maintain communication with agencies.	Maintain communication with agencies.
Information	Prepare information release.	Prepare information release.
Operations	Maintain active communication with companies. Adjust tactics. Evaluate progress of operations.	Determine need for additional resources. Adjust tactics. Evaluate progress of operations.
Planning	Modify action plan to meet changing situation. Predict incident progress. Predict resource needs.	Modify action plan to meet changing situation. Predict incident progress. Predict resource needs.
Logistics	Anticipate breathing air needs.	Anticipate breathing air needs.
Administration/ Finance		

Simulation Matrix: College Dormitory		
Function	**Message # 12**	**Message # 16**
Command	Consider adjusting strategy.	Support operations' requests for resources.
Safety	Consider structural integrity. Enforce safe corridors of operation. Review special considerations (type of structure/contents/equipment/use).	Address FF Accountability. Review special considerations (type of structure/contents/ equipment/use).
Liaison	Maintain communication with agencies.	
Information	Gather incident information. Maintain media contacts.	Gather incident information.
Operations	Deploy companies. Determine need for additional resources. Adjust tactics. Evaluate progress of operations.	Deploy companies. Maintain active communication with companies.
Planning	Modify action plan to meet changing situation. Predict incident progress. Predict resource needs. Maintain situation and resource status records.	Maintain situation and resource status records.
Logistics	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims). Manage command post area/vehicle.	Anticipate EMS requirements for triage, treatment, transport (FF and victims).
Administration/ Finance		Document injuries and deaths.

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	

Major Hazards and Risks:

Narrative:

Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Press Questions

What is the current situation?

_____

_____

How many students were in the dormitory when the fire occurred?

_____

_____

How many students have been injured?

_____

_____

Where have the injured students been taken?

_____

_____

How can parents check on the condition of their children?

_____

_____

What other agencies have you called in to assist?

_____

_____

We understand that the university is not required to comply with local building codes. Is this statement correct?

_____

_____

Isn't it a fact that their failure to comply with the city code contributed to this fire?

_____

_____

Activity 16.1:

Dormitory Simulation Exercise

Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a dormitory incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (a second Aide designated for groups with more than 10)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

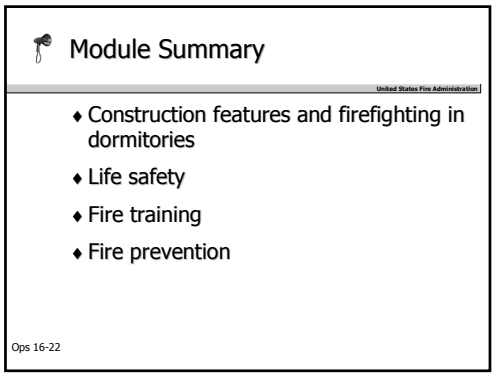
Activity 16.1:
Dormitory Simulation Exercise
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Slide 16-22: Module Summary



VIII. Module Summary (10 minutes)

Instructor Notes:

Briefly summarize the module and provide an opportunity for students to comment or ask questions.

The topics we discussed included:

- Construction features and firefighting in dormitories, including:
  - Ordinary construction,
  - Noncombustible construction, and
  - Mixed construction.
- Life safety, fire training, and fire prevention principles of dormitories.

MODULE 16

APPENDIX

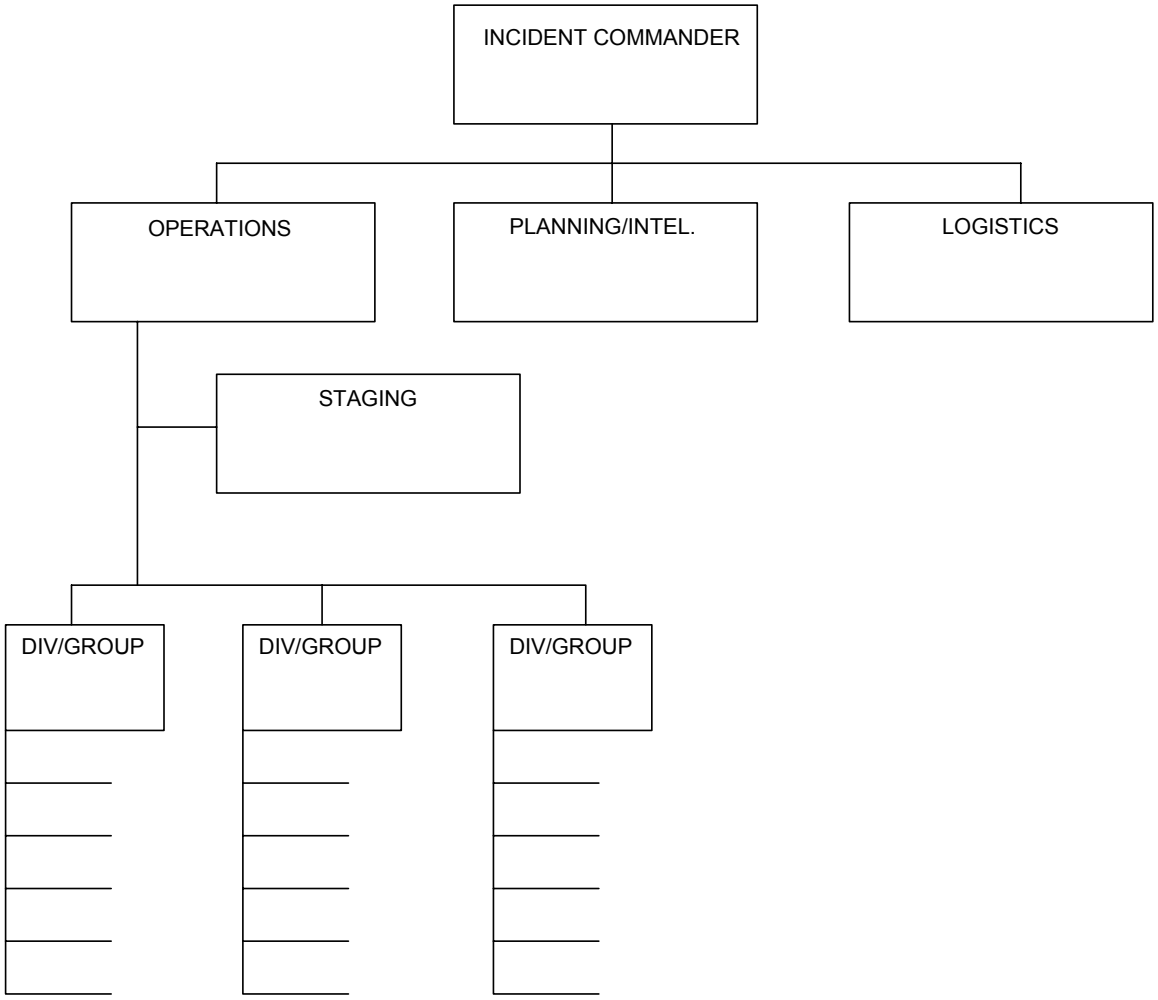
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

MODULE 17

MODULE 17

GRAIN ELEVATOR SIMULATION EXERCISE

MODULE 17:

GRAIN ELEVATOR SIMULATION EXERCISE

Terminal Objective

Upon completing the module, students will be able to effectively manage a grain elevator incident.

Enabling Objectives

Students will:

- Identify the critical cues required to manage a grain elevator incident;
- Establish incident objectives;
- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer
- LCD projector
- One portable screen or classroom equipped with screen

- Chalkboard/wipeboard
- Easel pads with markers
- Command Worksheets (may use local fire department worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than “normal” first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who makes command level decisions based on strategic objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities.

Some of these hazards are significant and are known as target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

Expanded Written Incident Action Plan

This course is designed for battalion chief level officers operating at target hazard incidents that usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action

plan (ICS Forms 202 through 206), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

The instructor should carefully read the instructor guide and the student manual and become familiar with the content before presenting the course.

The module combines a lecture and simulation for a grain elevator incident. Ensure that students understand the management needs, cues, and ICS organization structure needed at grain elevator incidents.

Methodology

This module uses lecture, discussion, and a simulation exercise.

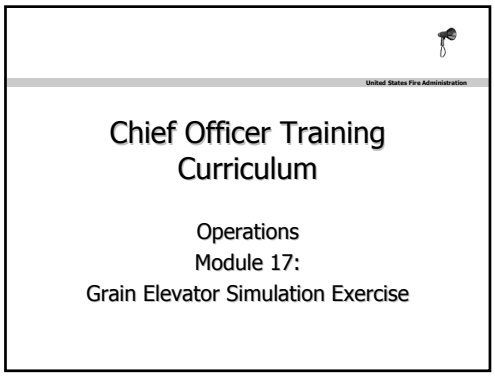
Outline

I. Objectives and Overview ..... 5 minutes
II. Grain Elevator Construction ..... 20 minutes
III. Incident Considerations: Grain Elevators ..... 15 minutes
IV. Incident Considerations: Grain Dryers ..... 15 minutes
V. Fire Extinguishment: Grain Elevators ..... 15 minutes
VI. Normal Causes or Sources of Ignition for Fire or Explosion ..... 10 minutes
VII. Activity 17.1: Grain Elevator Simulation Exercise and Debriefing ..... 150 minutes
VIII. Module Summary ..... 10 minutes
240 minutes

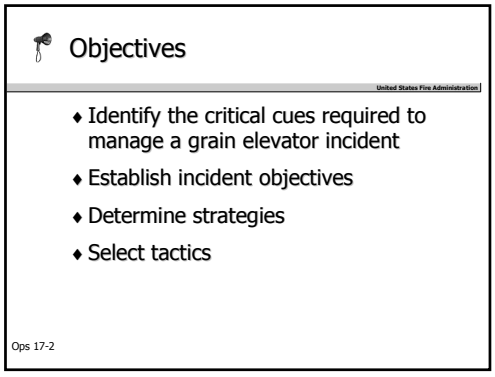
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

Slide 17-1: Module 17, Grain Elevator Simulation Exercise



Slide 17-2: Objectives



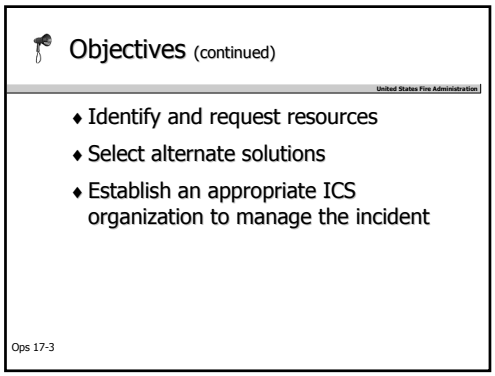
I. Objectives and Overview (5 minutes)

A. Objectives

Students will be asked to:

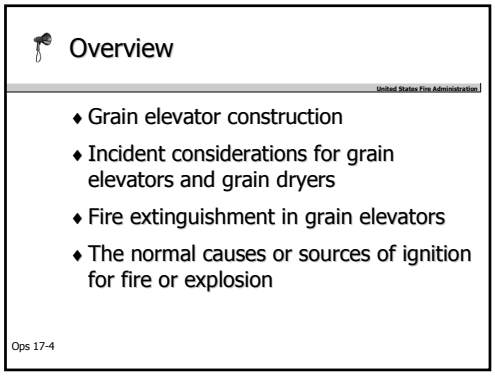
- Identify critical cues required to manage a grain elevator incident;
- Establish incident objectives;
- Determine strategies;
- Select tactics;

Slide 17-3: Objectives (continued)



- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Slide 17-4: Overview



B. Overview

Before beginning the simulation exercise, we will discuss:

- Grain elevator construction;
- Incident considerations for grain elevators and grain dryers;
- Fire extinguishment in grain elevators; and
- The normal causes or sources of ignition for fire or explosion.

II. Grain Elevator Construction (20 minutes)

Instructor Notes:

The normal thread of comparability that ties target hazards together is that normally they are complex and present a challenge to the command and operational capabilities of most fire and rescue organizations. The consideration here is complexity of construction, contents, life loads, fire loads, or a combination of all of the above. Scale and magnitude also present unusual challenges.

The mainstay of the fire service is the constant training and upgrading of training that keeps it prepared for the everyday normal responses, such as room and contents. We all know we have the training and experience to handle the routine. We not only train for it, we experience it on a regular basis.

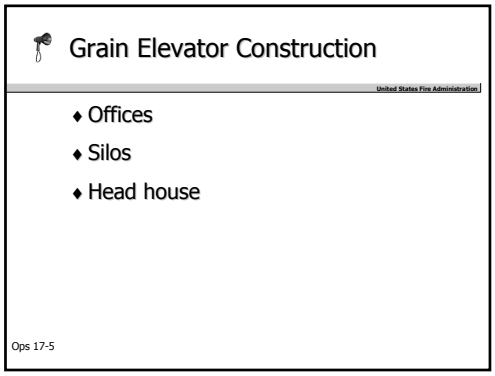
Ask the question:

Do the target hazards in your communities require constant training and provide your department with regular experience in dealing with their peculiar challenges? If so, what challenges?

Generally, we do not have the luxury of routine experience, other than preplanning activities and possibly response exercises with the facility staff and management. Because of these

practical restrictions, the preplanning process and the sharing of preplan information becomes most critical to our ultimate success when it becomes necessary to respond to a target hazard.

Slide 17-5: Grain Elevator Construction

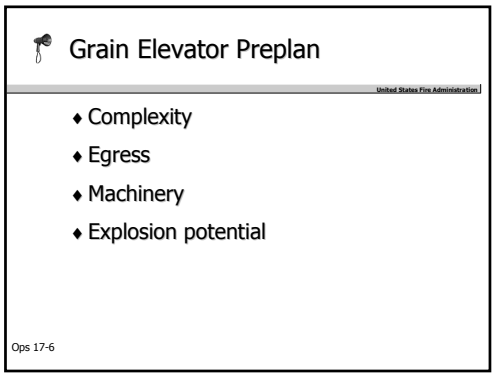


- Typical construction
  - Offices:
    - Type III—ordinary construction,
    - Type II—noncombustible construction, and
    - Type V—frame construction.
  - Silos:
    - Reinforced concrete—multistory; and
    - Steel/metal fabrication:
      - Site built and
      - Prefab and site assembled.
  - Head house:
    - Steel frame to support conveyors and machinery and
    - Corrugated metal roof and siding.

III. Incident Considerations: Grain Elevators (15 minutes)

Both large and small grain elevators will, like all target hazards, require a thorough and complete preplan.

Slide 17-6: Grain Elevator Preplan

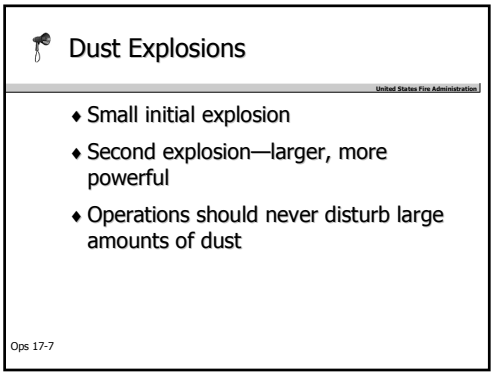


A. Preplan points to emphasize

The complexity of these facilities can present an unfamiliar challenge to firefighters unless they have familiarized themselves with the preplan information, including:

- Means of egress (exits and entrances);
- Machinery and related equipment used in processing and storing grain; and
- Hazardous materials.

Slide 17-7: Dust Explosions



B. Dust explosions

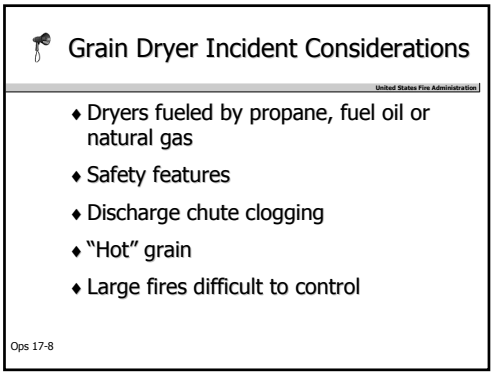
- Dust explosions are always a threat during a response to a grain elevator complex incident.
- These explosions normally consist of a small initial explosion, followed by a larger, much more powerful explosion.

  The second explosion is usually caused when the initial explosion disturbs dust that has built up on equipment and the building itself.

- Dust explosions cause large-scale damage. Destruction can be widespread. Firefighters in this environment are vulnerable, and it is always a safety consideration for command.

- The primary consideration for all responders is to be constantly aware that operations should never disturb large amounts of dust.

Slide 17-8: Grain Dryer Incident Considerations



IV. Incident Considerations: Grain Dryers (15 minutes)

A. Description

- Normal grain operations require grain to be dried in large dryers.

- These dryers are usually fueled by propane, fuel oil, or natural gas. These fuels can create additional hazards.

- Dryers have some safety features, typically an automatic shut-off valve to avoid overheating or overdrying the grain product.

B. Typical fire department response

- A typical fire department response is to a dryer operation problem caused when one leg of the dryer discharge chute clogs and backs up, causing grain to

overheat and ignite into a smoldering fire.

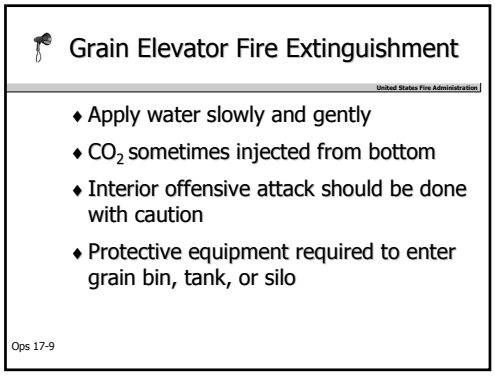
- The "hot" grain may remain in the dryer or eventually be conveyed to adjoining elevators or bins.

- Normally, the elevator staff can and will assist firefighters in locating and extinguishing these types of fires.

- It is important to shut down all operations during a response of this type.

- Large fires of this type are seldom easy to control; they rarely show open flame.

Slide 17-9: Grain Elevator Fire Extinguishment



V. Fire Extinguishment: Grain Elevators (15 minutes)

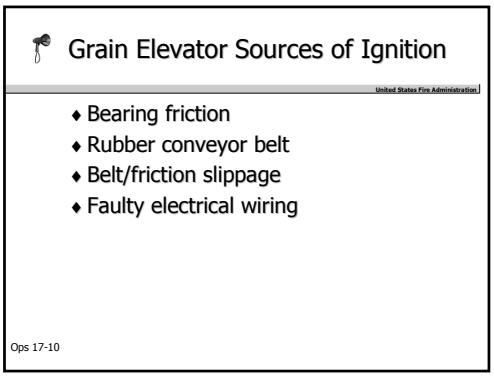
- Water is normally used to extinguish grain fires. Always apply water gently and slowly to avoid raising large amounts of surrounding dust.

- In large, stubborn elevator fires, the bin or elevator sometimes is sealed off and CO_2 is injected from the bottom. This is a very effective alternative.

- Interior offensive attack is never recommended. Instead, remove smoldering pockets of grain manually.

- If it becomes absolutely necessary to enter a grain bin, tank, or silo, use protective equipment and life lines. Always use proper confined-space operating procedures.

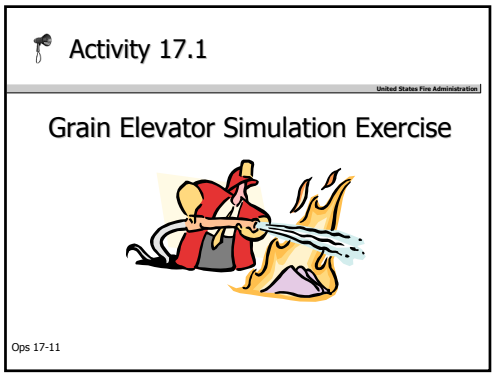
Slide 17-10: Grain Elevator Sources of Ignition



VI. Normal Causes or Sources of Ignition for Fire of Explosion (10 minutes)

- Bearing friction: overheated grease, oil, or lubricant ignites grain or dust;
- Rubber conveyor belt fires: belt rubs against metal framework, causing friction;
- Belt/friction slippage;
- Frayed or faulty wiring or electrical connections; and
- Damaged electrical conduits that expose arcing or faulty electrical components.

Slide 17-11: Activity 17.1: Grain Elevator Simulation Exercise



VII. Activity 17.1: Grain Elevator Simulation Exercise and Debriefing (150 minutes)

Instructor Notes:

Refer students to Activity 17.1, Grain Elevator Simulation Exercise, in their student manuals.

Activity 17.1:
Grain Elevator Simulation Exercise

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a grain elevator incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in the appendix), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups:**

   Each group will staff the positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. **Review the simulation rules:**

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control objectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will identify planning needs using the FOG Position Checklist: develop an alternate plan, collect and record information, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the times listed on each. The time in the upper right corner of each message indicates the

real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

You will play the role of various outside agency representatives and facilities management.

The roles played by an instructor should include:

Facility Manager/Maintenance Person—Report to the groups when asked that the electrical components of the facility have been shut down by plant personnel. Not all plant personnel have been accounted for at this time.
Police Supervisor—Make every effort to comply with assistance requests.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening, observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
- Planning Chief: Alternate plan

- Logistics Chief: Resource list
- Safety Officer: Safety message
- Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.
- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and discussing the following questions:

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?

- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- Discuss actions in response to these cues:
  - Size of burning belt,
  - Air temperature,
  - Length of burn time,
  - Fuel mix,
  - Life load—employees,
  - Wind direction and velocity,
  - Fire location,
  - Power shutdown,
  - Equipment location,
  - Inadequate equipment reach,
  - Access on the catwalk,
  - Missing employee,
  - Heavy smoke,
  - Firefighter collapse,
  - Fumigant presence,
  - Injured employee,
  - Arrival of outside agency,
  - Loss of water pressure, and
  - Product level in Tower #2.
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a

target hazard of this type in your community?

- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Incident overview:

A head house conveyor belt has been burning for about 20 minutes as it moves soybeans into the #2 south tower. Grain has been ignited from the belt fire and has been dumped into the tower, which is now about 50 percent full. The fire was reported at 1100 hours on a Wednesday in September. The air temperature is 95°F (35°C), and the humidity is 90 percent. The anticipated high temperature is 105°F (40.5°C), which would make it the third consecutive 100° or higher day. There are 18 employees working at the elevator site. The elevator towers are arranged along a north-south line. There is a double row of 15 towers on each side of the elevator. The wind is less than 5 mph out of the south.

Instructor Notes:

The weather conditions and the unique characteristics of the structure in which the fire is located will provide students with special command opportunities. Access to the fire location will be difficult because of the elevator system and its location. However, the fire is moving toward a portion of the elevator that is essential to keeping the facility operational. Hazardous materials and emergency medical considerations also play roles in the commanders' decisions.

Slide 17-12: Side A, towers 90 feet high

(**Note:** Point out the complex height and length of the structure.)

Slide 17-13: Access

(**Note:** Point out access availability and restrictions—tracks and cars.)

Slide 17-14: Side B

(**Note:** Point out the dryers and the actual height necessary to reach their locations.)

Slide 17-15: Related structures
(**Note:** Point out related structures and hazards.)

Slide 17-16: Placards
(**Note:** Point out the NFPA 704 M placard and fuel tank.)

Slide 17-17: Placards

Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

Grain Elevator
Quick Access Prefire Plan

Building Address: *310 Commerce Road*

Building Description:
Grain elevator-60' x 600' x 120' with 180' center tower. Reinforced concrete grain bins.
Roof Construction:
Concrete with corrugated metal housing.
Floor Construction:
Concrete floors in tower.

Occupancy Type:	**Initial Resources Required:**
Grain elevator.	*1st-alarm assignment.*

Hazards to Personnel:
Heavy operating machinery, dust explosion-hazardous material-high voltage.

Location of Water Supply:	**Available Flow:**
Hydrant, 12-inch municipal systems1,000' apart.	*1,500 gallons per minute (gpm) per hydrant.*

	Estimated Fire Flow			
Level of Involvement				
Estimated Fire Flow				

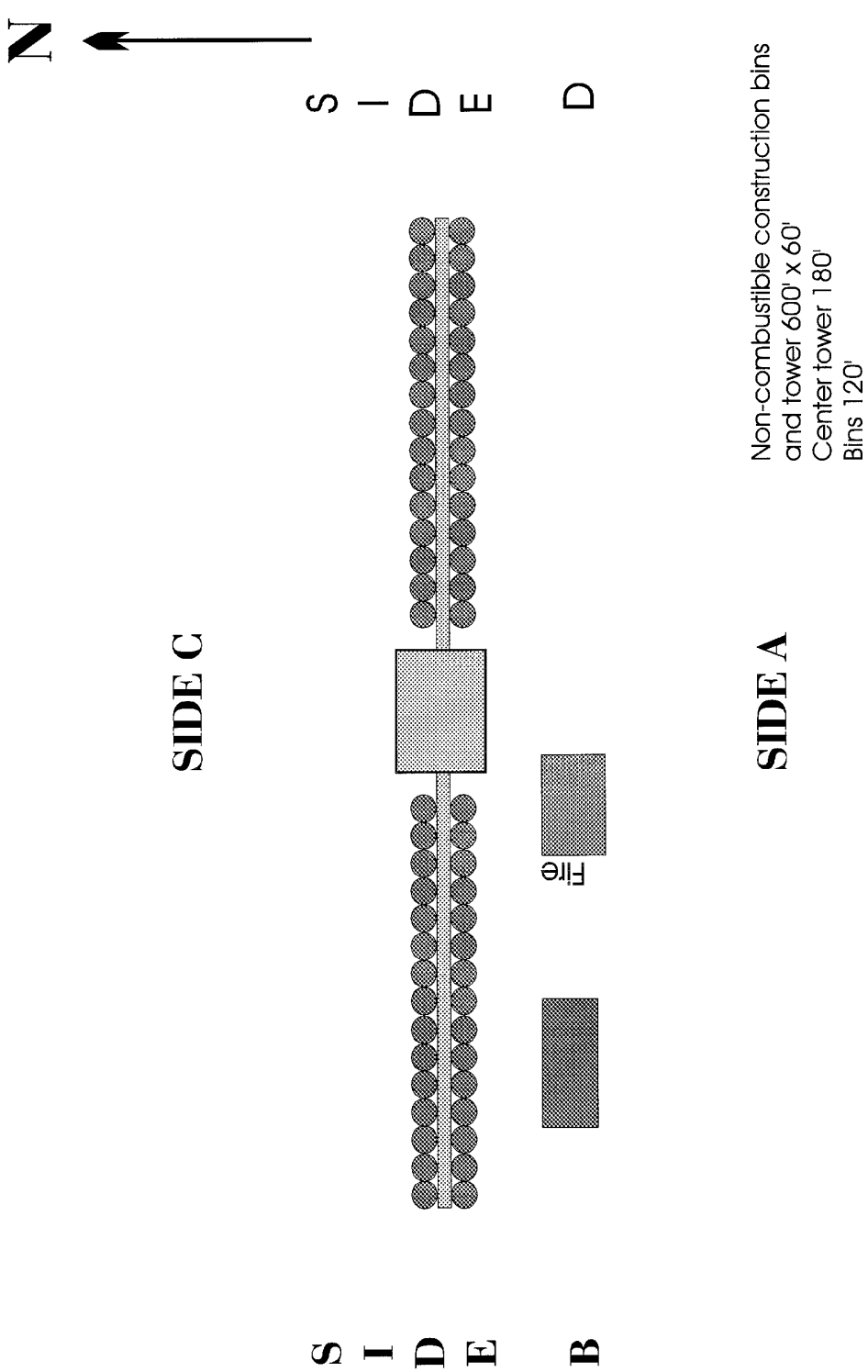
**Fire Behavior Prediction:*
Hidden fire in bins. Friction fire in conveyor system - product fire in conveyor system.

Predicted Strategies:
Confinement, extinguishment.

Problems Anticipated:
Access to fire area, height, potential dust explosion.

☒ **Standpipe:**	☐ **Sprinklers:**	☐ **Fire Detection:**
Yes	*No*	*No*

GRAIN ELEVATOR



Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card — **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card — **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card — **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card — **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card — **Response time: 20 min.**

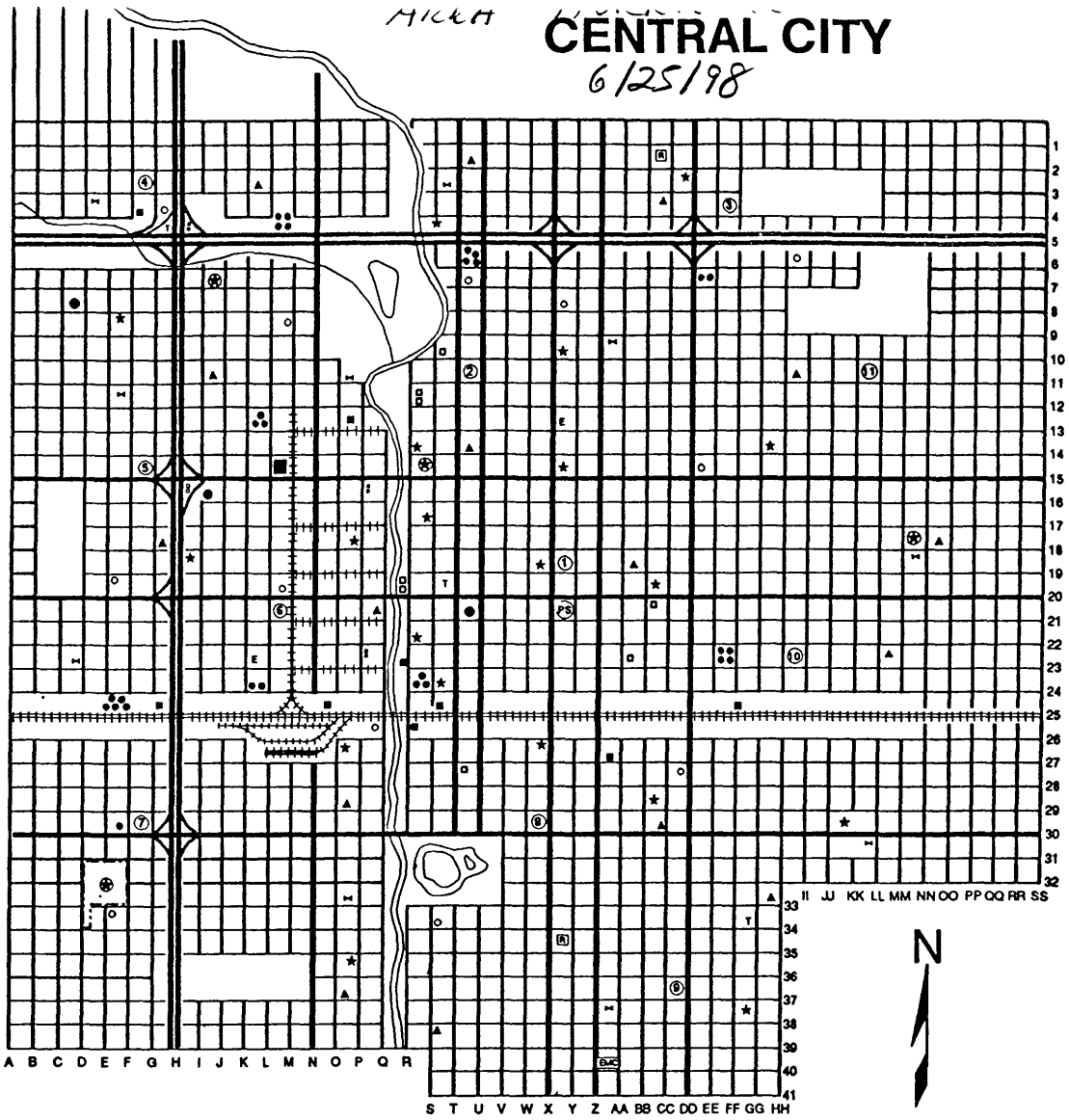
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card — **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card — **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

International Chemical Safety Cards			
ALUMINIUM PHOSPHIDE			**ICSC: 0472**
•INHALATION			
•SKIN	**ACUTE HAZARDS/ SYMPTOMS**	**PREVENTION**	**FIRST AID/ FIRE FIGHTING**
•EYES	Not combustible but forms flammable gas on contact with water or damp air. Gives off irritating or toxic fumes (or gases) in a fire.	NO open flames, NO sparks, and NO smoking. NO contact with acid(s) and water.	Special powder, dry sand, NO other agents. NO water.
EXPLOSION	Risk of fire and explosion on contact with acid(s) and water.		
EXPOSURE		PREVENT DISPERSION OF DUST! STRICT HYGIENE!	
	Sore throat. Cough. Shortness of breath. Headache. Dizziness. Nausea. Vomiting.	Local exhaust or breathing protection.	Fresh air, rest. Half-upright position. Artificial respiration if indicated. Refer for medical attention.
	Redness. Burning sensation.	Protective gloves.	Remove contaminated clothes. Rinse and then wash skin with water and soap. Wear protective gloves when administering first aid.
	Redness.	Safety goggles, or eye protection in combination with breathing protection.	First rinse with plenty of water for several minutes (remove contact lenses if easily possible), then take to a doctor.
•INGESTION	Nausea. Vomiting. Diarrhea. Abdominal pain. Headache. Convulsions. Shock or collapse. Unconsciousness.	Do not eat, drink, or smoke during work. Wash hands before eating.	Induce vomiting (ONLY IN CONSCIOUS PERSONS!). Refer for medical attention.

SPILLAGE DISPOSAL	STORAGE	PACKAGING & LABELLING
Evacuate danger area! Consult an expert! Do NOT wash away into sewer. Sweep spilled substance into sealable containers. Carefully collect remainder, then remove to safe place. Do NOT let this chemical enter the environment. (Extra personal protection: complete protective clothing including self-contained breathing apparatus).	Fireproof. Provision to contain effluent from fire extinguishing. Separated from acids, water, food and feedstuffs. Dry.	Airtight. Do not transport with food and feedstuffs. F symbol T+ symbol R: 15/29-28 S: 1/2-3/9/14-30-36/37-45 UN Hazard Class: 4.3 UN Subsidiary Risks: 6.1 UN Packing Group: I

I M P O R T A N T D A T A	**PHYSICAL STATE; APPEARANCE:** DARK GREY OR DARK YELLOW CRYSTALS. **PHYSICAL DANGERS:** **CHEMICAL DANGERS:** The substance decomposes on contact with water, moist air and acids producing highly flammable and toxic gases (phosphine, see ICSC # 0694). **OCCUPATIONAL EXPOSURE LIMITS:** TLV not established.	**ROUTES OF EXPOSURE:** The substance can be absorbed into the body by inhalation of its aerosol and by ingestion. **INHALATION RISK:** Evaporation at 20°C is negligible; a harmful concentration of airborne particles can, however, be reached quickly. Hydrolysis in atmospheric moisture or perspiration may yield gaseous phosphine which can be inhaled. **EFFECTS OF SHORT-TERM EXPOSURE:** The substance irritates the eyes the skin and the respiratory tract. Inhalation of phosphine liberated from aluminum phosphide may cause lung edema (see Notes). The substance may cause effects on the cardiovascular system, nervous system and respiratory tract , resulting in impaired functions and respiratory failure. Exposure may result in death.
		EFFECTS OF LONG-TERM OR REPEATED EXPOSURE:
PHYSICAL PROPERTIES	Melting point: 1000°C Relative density (water = 1): 2.9	Solubility in water: reaction
ENVIRONMENTAL DATA	The substance is toxic to aquatic organisms.	
N O T E S		
Commercial formulations for fumigations usually contain 57% of active ingredient. Reacts violently with fire extinguishing agents such as water. The symptoms of lung edema often do not become manifest until a few hours have passed and they are aggravated by physical effort. Rest and medical observation are therefore essential. Immediate administration of an appropriate spray, by a doctor or a person authorized by him/her, should be considered. Do NOT take working clothes home. Alutal, Celphide, Celphine, Celphos, Delicia Gastoxin, Detia Gas-Ex-B, Detia Gas-Ex-P, Detia Gas-Ex-T, L fume, Phosfume, Phostek, Phostoxin, Quickfos, and Zedesa are trade names. Also consult ICSC # 0694 for Phosphine.		

CHRIS - Chemical Hazard Response Information System

ALUMINUM PHOSPHIDE

OVERVIEW
Material name:
ALUMINUM PHOSPHIDE.
CHRIS Code APH.
Common synonyms:
Aluminum monophosphide.
AIP.
Characteristics:
Solid crystals or powder Dark gray; dark yellow, May have "fishy," phosphine odor.
Sinks and reacts with water to produce poisonous and spontaneously flammable phosphine gas.
Emergency actions:
AVOID CONTACT WITH SOLID, DUST, OR GASES FROM REACTION WITH WATER.
KEEP PEOPLE AWAY.
Wear positive-pressure breathing apparatus and full protective clothing.
Shut off ignition sources and call fire department.
Stop discharge if possible.
Isolate and remove discharged material.
Notify local health and pollution control agencies.
Fire:
FLAMMABLE AND POISONOUS GAS PRODUCED ON CONTACT WITH WATER.
POISONOUS GASES ALSO PRODUCED IN FIRE.
Wear positive-pressure breathing apparatus and full protective clothing.
DO NOT USE WATER OR FOAM.
Extinguish small fires: dry chemical, soda ash or lime.
Large fires: withdraw from area and let burn.
Move container from fire area if you can do it without risk.
Exposure:
CALL FOR MEDICAL AID.
POISONOUS VAPOR PRODUCED IN REACTION WITH WATER MAY BE FATAL IF INHALED.
SEVERE PULMONARY IRRITANT AND AN ACUTE SYSTEMIC POISON; MAY CAUSE SUDDEN OR DELAYED DEATH.
Effects may be delayed; Keep under observation.
DUST.
POISONOUS; MAY BE FATAL IF INHALED.
Move to fresh air.
If breathing has stopped, give artificial respiration.
If breathing is difficult, give oxygen.
Effects may be delayed; keep under observation.
SOLID.
POISONOUS IF SWALLOWED OR SKIN EXPOSED.
IF IN EYES OR ON SKIN, flush with running water for at least 15 minutes; hold eyelids open periodically if appropriate.
Remove and isolate contaminated clothing and shoes.
IF SWALLOWED and victim is UNCONSCIOUS OR HAVING CONVULSIONS do nothing except keep warm.
Water pollution:
Effects of low concentration on aquatic life is unknown.
May be dangerous if it enters water intakes.
Notify local health and wildlife officials.
Notify operators of nearby water intakes.
RESPONSE TO DISCHARGE
Issue warning - high flammability, poison, air and water contaminant. Restrict access, Evacuate area (large discharge only). Should be removed.

LABEL
Category: Flammable Solid; Dangerous when wet.
Class: 4.
CHEMICAL DESIGNATIONS
CG compatibility class: Not listed.
Formula: AIP.
IMO/UN designation: 4.3/1397.
DOT id no.: 1397.
OBSERVABLE CHARACTERISTICS
Physical state: Solid (crystals or powder).
Color: Dark gray; dark yellow.
Odor: May generate fishy odor of phosphine upon exposure to moisture in air.
HEALTH HAZARDS
Personal protective equipment: Wear positive-pressure breathing apparatus and full protective clothing.
Symptoms following exposure: Highly toxic. May be fatal if inhaled (dust) or swallowed. Also poisonous via skin contact. (Readily reacts with moisture or acids to produce phosphine gas which is a severe pulmonary irritant, an acute poison and spontaneously flammable. Ingestion may result in respiratory, cardiac, hepatic and renal involvement. Exposure to phosphine gas may cause headache, fatigue, nausea, vomiting, cough, severe breathing difficulties, shortness of breath, jaundice, paresthesias, ataxia, intention tremor, diplopia and miocardial injury. Breathing difficulties may be delayed several hours after exposure to phosphine has ceased.)
Treatment of exposure:
INHALATION: Move victim to fresh air; call for emergency medical care. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Breathing difficulties may be delayed; Keep under observation. EYES OR SKIN: Immediately flush with running water for at least 15 minutes holding upper and lower eyelids open periodically if appropriate. Remove and isolate contaminated clothing and shoes at the site. Keep victim quiet and maintain normal body temperature.
INGESTION: If unconscious or having convulsions, do nothing except maintain normal body temperature.
Threshold limit value: 2mg/m(3) (A1).
Toxicity by ingestion: Grade 4; LD(50) = 20 mg/kg (human).
Vapor (gas) irritant characteristics: In the presence of moisture, it generates phosphine gas, a severe pulmonary irritant.
Liquid or solid irritant characteristics: Data not available.
IDLH value: Data not available.
FIRE HAZARDS
Flashpoint: Not pertinent (Reacts with moisture to produce phosphine gas which is spontaneously flammable at room temperature.)
Flammable limits in air: Not pertinent. (Data not available for the phosphine gas produced upon exposure to moisture.)
Fire extinguishing agents: Small fires: Dry chemical, soda ash or lime. Large fires: Withdraw from area and let fire burn.
Fire extinguishing agents NOT to be used: Do not use water or foam.
Special hazards of combustion products: May contain toxic gases and vapors such as oxides of phosphorous and phosphoric acid mist.
Behavior in fire: Can react with water or acids to produce spontaneously flammable and acutely toxic phosphine gas.
Ignition temperature: Not pertinent. (Reacts with water or acids to produce phosphine gas which is spontaneously flammable at room temperature.)
Burning rate: Not pertinent.
Flame temperature: Data not available.
CHEMICAL REACTIVITY
Reactivity with water: Reacts with water or steam to produce phosphine gas. Phosphine is highly toxic and spontaneously flammable; and its combustion products, such as oxides of phosphosus, are also highly toxic.
Reactivity with common materials: May react with the moisture in wood to produce spontaneously flammable phosphine gas. Reacts violently with oxidizing substances.
Stability during transport: Stable (when dry).
Neutralizing agents for acids and caustics: Not pertinent.
Polymerization: Not pertinent.
Inhibitor of polymerization: Not pertinent.
WATER POLLUTION
Aquatic toxicity: Data not available.
Waterfowl toxicity: Data not available.

HAZARD CLASSIFICATIONS
Code of federal regulations: Flammable solid.
NFPA hazard classification: Not listed.
PHYSICAL AND CHEMICAL PROPERTIES
Physical state at 15 degrees C. and 1 ATM: Solid.
Molecular weight: 57.96.
Freezing point: >1,832 degrees F. = > 1,000 degrees C. = >1,273 degrees K.
Specific gravity: 2.85 at 25 degrees C.

Instructor Notes:

These messages are examples of possible messages for the incident. You may need to adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 1110 hours**

To: Operations (Battalion Chief)

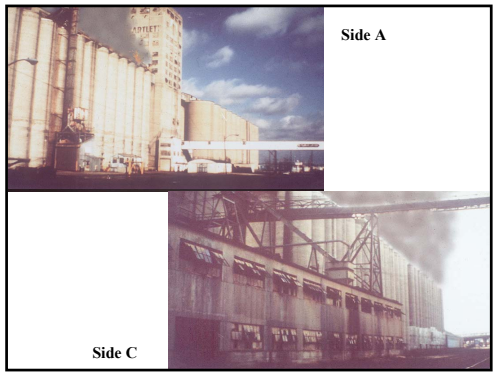
Message:

It is Thursday, September 1. Engine 1 reports that a head house conveyor belt has ignited as it was moving soybeans into the #2 south tower at the grain elevator. Temperature is 95ºF, and the humidity is 80 percent. There are 18 employees working at the elevator site.

Engine 1 reports that approximately 300 feet of conveyor belt is on fire in the south head house. They are developing a water line for fire attack. Reports indicate that the top and bottom belts are burning. In addition, grain in the #2 south bin may be burning. The power to the entire complex has been shut down except for the man lift. Truck 1 is developing a water tower on the Side A. Engine 2 is proceeding to the top of the central tower on the man lift to assist Engine 1 in a fire attack.

Engine 3, Squad 1, Rescue 3, MSU 6, and ALS Ambulance 2 have just arrived on the scene and have not been deployed. I have requested a second alarm.

Slide 17-18: Sides A/B of tower, heavy smoke from windows



Simulation Time: 00:05

SIMULATION MESSAGE

Message #2 **Incident Time: 1125 hours**

To: Operations

Message:

CCFD Incident management Team has arrived on the scene and will be briefed by Battalion Chief.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #3 **Incident Time: 1128 hours**

To: Operations/Planning/Safety

Message:

Engine 2 reports that they may be able to cut the fire off at the elevator tower. Need a company to protect the central tower exposure.

Simulation Time: 00:18

SIMULATION MESSAGE

Message #4 **Incident Time: 1129 hours**

To: Liaison/Planning

Message:

Police commander is at the command post. Do you need any assistance? Should we evacuate any of the surrounding farm houses?

Simulation Time: 00:19

SIMULATION MESSAGE

Message #5 **Incident Time: 1130 hours**

To: Operations/Logistics/Safety

Message:

Truck 1 reports that they are 20 feet short of the top of the tower and need an additional 200 feet of hose.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #6 **Incident Time: 1131 hours**

To: Operations/Planning

Message:

Second alarm companies are in staging.

Simulation Time: 00:21

SIMULATION MESSAGE

Message #7 **Incident Time: 1136 hours**

To: Operations/Safety

Message:

Engine 3 reports that they are on the main lift advancing a hose line to the tower area.

Simulation Time: 00:26

SIMULATION MESSAGE

Message #8 **Incident Time: 1138 hours**

To: Information Officer/Incident Commander

Message:

Media are on the scene. They have reports that two workers have been killed. Prepare a written press release.

Simulation Time: 00:28

SIMULATION MESSAGE

Message #9 **Incident Time: 1140 hours**

To: Liaison/Operations/Planning

Message:

Elevator shift supervisor reports that one employee is missing; he was assigned to central tower.

Simulation Time: 00:30

SIMULATION MESSAGE

Message #10 **Incident Time: 1142 hours**

To: Operations/Logistics/Safety

Message:

Engine 2 reports that it is advancing a hose line from the head house level. Need additional assistance.

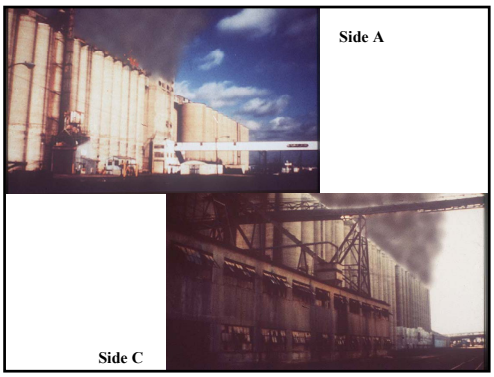
Simulation Time: 00:32

SIMULATION MESSAGE

Message #11 **Incident Time: 1143 hours**

Alert all Incident Command Team members.

Slide 17-19: Sides A/C of tower, heavy smoke from windows



Simulation Time: 00:33

SIMULATION MESSAGE

Message #12 **Incident Time: 1146 hours**

To: Operations/Safety/Logistics

Message:

One firefighter from Engine 2 has collapsed on the south side catwalk by the #1 tower; appears to be overheated. Need EMS assistance.

Simulation Time: 00:36

SIMULATION MESSAGE

Message #13 **Incident Time: 1148 hours**

To: Liaison/Safety/Operations

Message:

Elevator shift supervisor reports that one missing employee was spreading Phostoxin. Material is a dark crystal that is water reactive. Approximately 50 1-pound aluminum containers were stored at the conveyor belt level in the tower. Phostoxin is a fumigant insecticide for insects in grain products.

Simulation Time: 00:38

SIMULATION MESSAGE

Message #14 **Incident Time: 1151 hours**

Alert all Incident Command Team members.

Slide 17-20: Sides A/C of tower, light smoke from windows

Simulation Time: 00:41

SIMULATION MESSAGE

Message #15 **Incident Time: 1152 hours**

To: Operations/Planning/Safety

Message:

Fire attack group reports that fire on the belt in knocked down. Fire did not reach the central tower.

Simulation Time: 00:42

SIMULATION MESSAGE

Message #16 **Incident Time: 1156 hours**

To: Operations/Liaison/Planning

Message:

Elevator employee has been found at the far end of the north section; he is suffering from smoke inhalation and may have been exposed to Phostoxin. There is an open cylinder of Phostoxin with granules on the floor alongside the employee. Please advise.

Simulation Time: 00:46

SIMULATION MESSAGE

Message #17 **Incident Time: 1157 hours**

To: Liaison/Planning

Message:

State grain inspector, county health department, and EPA are on scene. They are concerned about the possibility of a dust explosion.

Simulation Time: 00:47

SIMULATION MESSAGE

Message #18 **Incident Time: 1158 hours**

To: Operations/Logistics/Safety

Message:

Engine 1 reports that one firefighter is suffering from heat exhaustion and another is complaining of difficulty breathing. Need relief for the firefighters.

Simulation Time: 00:48

SIMULATION MESSAGE

Message #19 **Incident Time: 1200 hours**

To: Operations/Logistics/Safety

Message:

Truck 1 reports crew is overheated; needs relief.

Simulation Time: 00:50

SIMULATION MESSAGE

Message #20 **Incident Time: 1202 hours**

To: Operations/Safety/Liaison

Message:

Fire attack group reports that fire in silo #2 appears to be small and could be handled with manual removal of smoldering product if they can reach it. Top of product is approximately 50 feet below the hatch.

Simulation Time: 00:52

SIMULATION MESSAGE

Message #21 **Incident Time: 1210 hours**

To: Incident Commander

Message:

Simulation complete. Take 10 minutes to recap activities.

Simulation Time: 00:58

SIMULATION MESSAGE

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Matrix: Grain Elevator		
Function	**Message # 1**	**Message # 5**
Command	Perform size-up, establish strategy, develop ICS structure.	Monitor progress and evaluate strategy. Consider adjusting strategy.
Safety	Judge apparatus placement safety. Confront tactical safety. Review special considerations (type of structure/contents/equipment/use).	Judge apparatus placement safety.
Liaison	Identify personal contacts. Identify shelter and/or relocation sites.	Communicate on rest and rehab area.
Information	Gather incident information.	Gather incident information.
Operations	Deploy companies. Define tactics. Determine need for additional resources. Establish fire/EMS ICS operational structure.	Adjust tactics. Evaluate progress of operations.
Planning	Predict incident progress. Predict resource needs. Work with technical specialists.	Modify action plan to meet changing situation. Predict resource needs. Maintain situation and resource status records. Work with technical specialists.
Logistics	Establish facilities and support for rest and rehab areas.	Anticipate EMS requirements for triage, treatment, transport (FF and victims).
Administration/ Finance		

Simulation Matrix: Grain Elevator		
Function	**Message # 9**	**Message # 12**
Command	Consider adjusting strategy.	Consider adjusting strategy. Develop and approve action plan.
Safety	Address FF accountability.	Enforce safe corridors of operation. Address FF accountability. Review special considerations (type of structure/contents/ equipment/use).
Liaison	Identify personal contacts. Communicate on building occupant accountability.	Maintain communication with agencies. Communicate on rest and rehab areas.
Operations	Deploy companies. Determine need for additional resources. Adjust tactics.	Deploy companies. Determine need for additional resources. Maintain active communication with companies. Adjust tactics.
Planning	Predict resource needs. Maintain situation and resource status records. Work with technical specialists.	Modify action plan to meet changing situation. Predict incident progress. Predict resource needs. Maintain situation and resource status records.
Logistics	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish facilities and support for rest and rehab areas.	Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish facilities and support for rest and rehab areas.
Administration/ Finance	Document injuries and deaths.	Document injuries and deaths.

Simulation Matrix: Grain Elevator		
Function	**Message # 13**	**Message # 16**
Command	Monitor progress and evaluate strategy. Consider adjusting strategy. Support operations' requests for resources.	Monitor progress and evaluate strategy.
Safety	Confirm tactical safety. Review special considerations (type of structure/contents/equipment/use).	Enforce safe corridors of operation. Address FF accountability. Confront tactical safety. Review special considerations (type of structure/contents/ equipment/use).
Liaison	Maintain communication with agencies. Communicate on building occupant accountability.	Maintain communication with agencies.
Information	Maintain media contacts.	Prepare information release. Conduct press briefing.
Operations	Deploy companies. Determine need for additional resources. Adjust tactics. Evaluate progress of operations.	Determine need for additional resources. Maintain active communication with companies.
Planning	Modify action plan to meet changing situation. Predict resource needs. Work with technical specialists.	Maintain situation and resource status records.
Logistics	Anticipate EMS requirements for triage, treatment, transport (FF and victims).	Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish support for incident supplies: batteries, radios, tools, lighting, etc.
Administration/ Finance	Document injuries and deaths.	

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	

Major Hazards and Risks:

Narrative:

Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Press Questions

How many injuries are there, and what are you doing to prevent additional injuries?

_____

_____

Is the smoke toxic, and how far do you expect it to spread?

_____

_____

Is there a possibility of a second explosion? If so, what are you doing to prevent it?

_____

_____

Is it safe for the firefighters to work in the area?

_____

_____

Have you found violations of the fire and building code at this complex?

_____

_____

We understand that there are hazardous chemicals used at this complex. Is the facility permitted to store and handle these materials?

_____

_____

What are you doing to capture the runoff of the contaminated water at the site?

_____

_____

It is extremely hot. What are you doing to protect the firefighters?

_____

_____

Activity 17.1:
Grain Elevator Simulation Exercise
Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a grain elevator incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (a second Aide designated for groups with more than 10)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

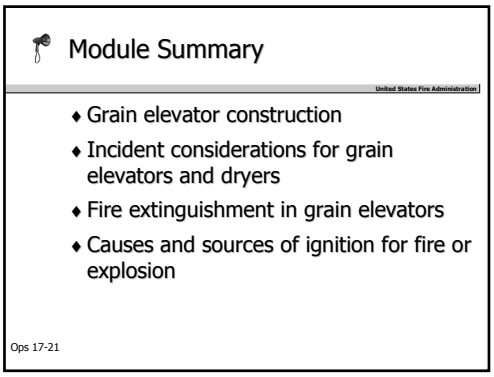
Activity 17.1:
Grain Elevator Simulation Exercise
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Slide 17-21: Module Summary



VIII. Module Summary (10 minutes)

Instructor Notes:

Briefly summarize the module and provide and opportunity for the students to comment or ask questions.

Topics covered in the module were:

- Grain elevator construction;
- Incident considerations for grain elevators and grain dryers;
- Fire extinguishment in grain elevators; and
- The normal causes or sources of ignition for fire or explosion.

MODULE 17

APPENDIX

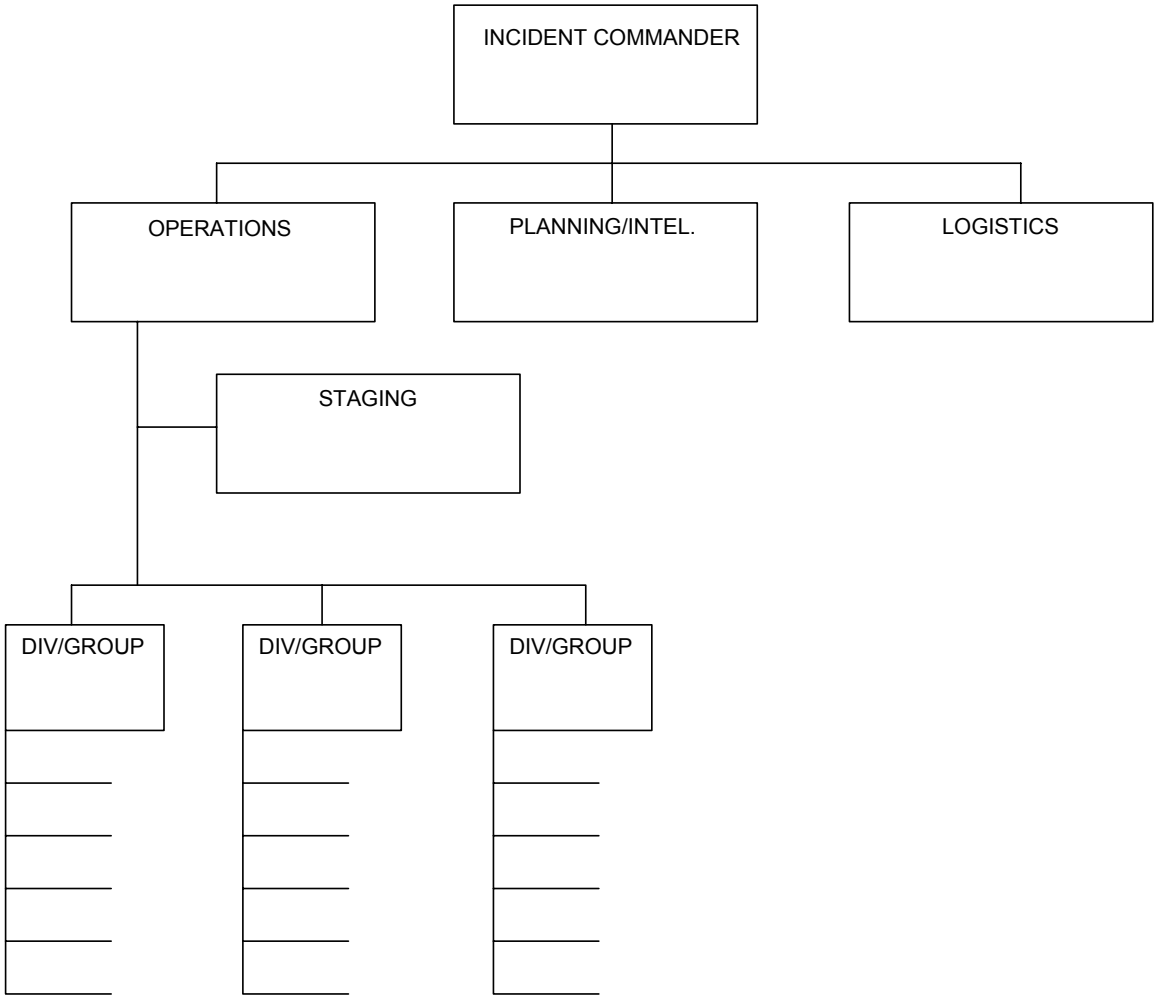
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

MODULE 18

PENAL INSTITUTION SIMULATION EXERCISE

MODULE 18:

PENAL INSTITUTION SIMULATION EXERCISE

Terminal Objective

Upon completing the module, students will be able to apply an ICS organization to effectively manage a penal institution incident.

Enabling Objectives

Students will:

- Identify critical management cues at a penal institution incident;
- Identify what to document at a penal institution incident;
- Establish incident objectives;
- Determine strategies;
- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Requirements

Facility

Classroom with tables

Materials

- COTC Operations Instructor Guide
- COTC Operations Student Manual
- PowerPoint® slides

Equipment

- Computer
- LCD projector

- One portable screen or classroom equipped with screen
- Chalkboard/wipeboard
- Easel pads with markers
- Command Worksheets (may use local fire department worksheets if available and meet the needs of the module)

References

- Student Manual

Instructor Guidelines

This course is intended for a third level of management, the battalion chief or newly promoted chief officer, in a typical emergency services organization. The newly promoted chief officer will think in terms of strategy, as opposed to tactics, on an emergency scene. The officer will need a good, basic understanding of tactics as they play into strategic decisions, but will focus on strategic decisions. To this end, it is recommended that students complete Modules 1 through 3 (Application of the Incident Command System [ICS], Incident Command Decision-Making, and Incident Action Plan [IAP]/Planning) before enrolling in any of the simulation exercise modules.

The simulations in this course are designed to provide opportunities for the newly promoted chief officers to develop their skills as incident commanders at emergencies that require more resources than “normal” first-alarm, initial attacks in their communities. This simulation methodology allows the students to transition from the tactical perspective of a company officer to a strategic perspective of a chief officer who makes command level decisions based on strategic objectives required of an incident commander at a major target hazard incident.

The officers attending this course should be familiar with the target hazards found in their communities. Some of these hazards are significant and are known as target hazards. Target hazards are defined as incidents that:

- Overload fire equipment and personnel resources;
- Involve atypical hazards;
- Produce a significant negative impact on the community;
- Require technical advice for effective strategy development; and
- May initiate multi-agency involvement.

The most serious of these target hazards, for example, a major commercial or high-rise fire, can quickly stretch the capacity of the fire department's resources.

The students should rotate through the various command and general staff positions to see the responsibilities of the incident commander as individual components. The instructor would normally divide the class into groups of six to eight students, assigning each student a position on the Incident Management Team (IMT). An alternate method is to assign more experienced students to the IMT positions and assign other students in deputy or assistant roles, which allows them to shadow their more experienced peers. As the course develops, the instructor may begin to assign additional responsibilities to the command and general staff, including the development of the Incident Action Plan (IAP). The ICS forms needed to complete the IAP are included in the appendix of each simulation exercise module.

Expanded Written Incident Action Plan

This course is designed for battalion chief level officers operating at target hazard incidents that usually do not extend over several operational periods.

However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

The instructor should carefully read the instructor guide and the student manual and become familiar with the content before presenting the course.

Most penal institutions have Emergency Operating Plans (EOP). Fire departments should be familiar with the plans, which contain detailed information on the "triggers" that drive the warden and the corrections personnel to move prisoners within the prison to safe areas or to evacuate the facility. In the EOP, the warden has pre-determined the need for additional police resources, when and where he or she will obtain buses for the movement of prisoners, and the location to which the prisoners will be transported. The warden and his or her subordinates are fully in charge of any operation pertaining to the prisoners, which is a foreign concept to most of the fire service leadership who believe that the fire service is fully in charge of every operation.

The module combines a lecture and simulation for a penal institution incident. Ensure that students understand the management needs, cues, and ICS organization structure needed at penal institution incidents.

Methodology

This module uses lecture, discussion, a simulation exercise, and an activity.

Outline

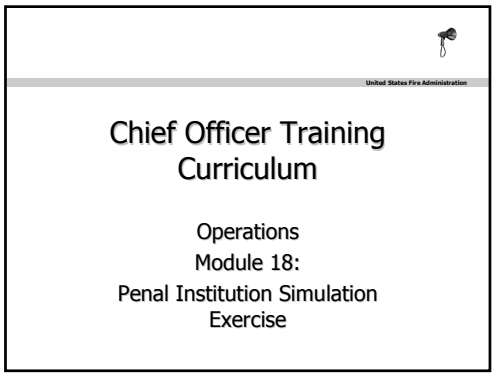
I. Objectives and Overview ..... 5 minutes
II. Location and Structure ..... 5 minutes
III. Fire Protection Systems ..... 5 minutes
IV. Incident Considerations ..... 15 minutes
V. Preplan Information ..... 5 minutes
VI. Authority of the Warden ..... 5 minutes
VII. Activity 18.1: Penal Institution Simulation Exercise and Debriefing ..... 130 minutes
VIII. Documentation ..... 35 minutes
IX. Activity 18.2: Penal Institution Documentation Exercise ..... 30 minutes
X. Module Summary ..... 5 minutes

240 minutes

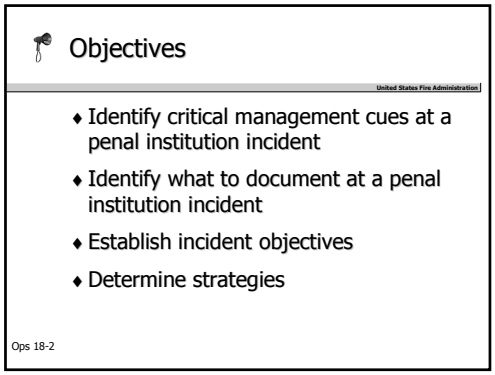
NFPA 1021 Standards Cross-Reference Matrix

3-6, 3-7, 4-6, 4-7

Slide 18-1: Module 18, Penal Institution Simulation Exercise



Slide 18-2: Objectives



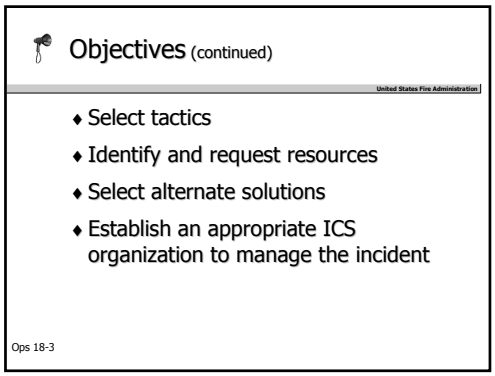
I. Objectives and Overview (5 minutes)

A. Objectives

Students will be asked to:

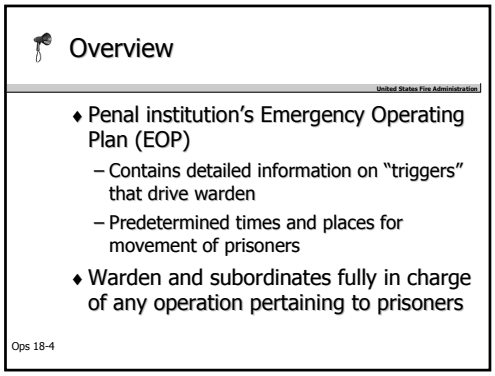
- Identify critical management cues at a penal institution incident;
- Identify what to document at a penal institution incident;
- Establish incident objectives;
- Determine strategies;

Slide 18-3: Objectives (continued)



- Select tactics;
- Identify and request resources;
- Select alternate solutions; and
- Establish an appropriate ICS organization to manage the incident.

Slide 18-4: Overview



B. Overview

- Most penal institutions have Emergency Operating Plans (EOP). Fire departments should be familiar with the plans, which contain detailed information on the "triggers" that drive the warden and the corrections personnel to move prisoners within the prison to safe areas or to evacuate the facility.
- In the EOP, the warden has pre-determined the need for additional police resources, when and where he or she will obtain buses for the movement of prisoners, and the location to which the prisoners will be transported.
- The warden and his or her subordinates are fully in charge of any operation pertaining to the prisoners, which is a foreign concept to most of the fire service

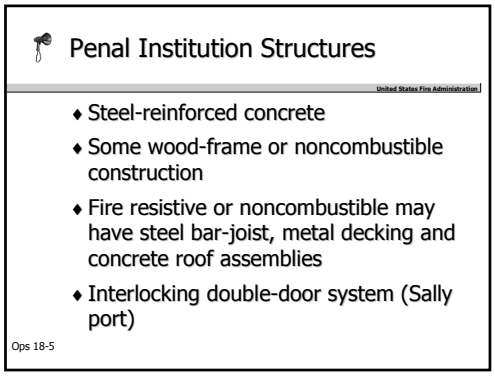
leadership who believe that the fire service is fully in charge of every operation.

II. Location and Structure (5 minutes)

A. Location

- High-density areas close to the courthouse for cities and counties and
- Rural areas, generally, for state and Federal.

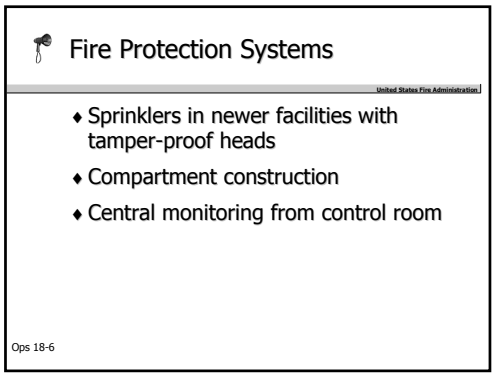
Slide 18-5: Penal Institution Structures



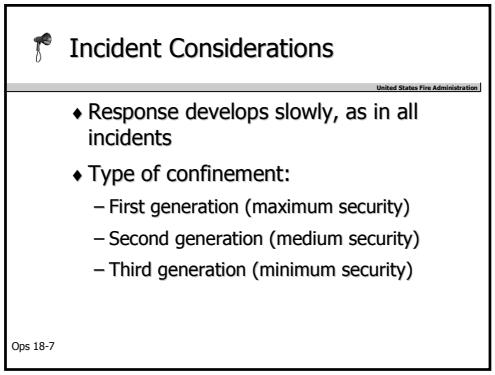
B. Structures

- Steel-reinforced concrete:
  - Large diameter reinforcement bar;
  - Roll bars (bar within a tube) on windows; and
  - Lexan™ window glazing.
- Wood-frame or noncombustible type construction in some small communities;
- Bar-joist, steel-truss roof supports with poured concrete deck;
- Interlocking double entry door systems:
  - Controlled from command room and

Slide 18-6: Fire Protection Systems



Slide 18-7: Incident Considerations



- Video monitoring.

III. Fire Protection Systems (5 minutes)

- Sprinklers in newer areas with tamper-proof heads:
  - High-rise sections,
  - Pods, and
  - Work areas: laundry, kitchen, shops;
- Compartment construction; and
- Central monitoring from control room.

IV. Incident Considerations (15 minutes)

A. Response develops slowly.

B. Command decisions evolve in similar manner to haz mat incident.

- Large life load with average-to-low fire load and
- May require a larger than normal initial response.

C. Type of confinement

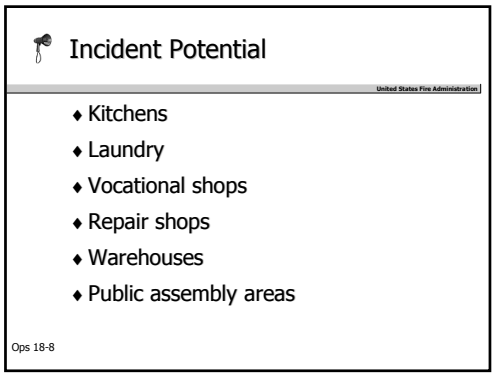
- First generation (maximum security):

- Indirect, intermittent supervision;
- Bars, corridors, periodic viewing of prisoners; and
- Prisoners isolated within cell block.

- Second generation (medium security):
  - Indirect supervision—little contact between guards and prisoners; and
  - Plexiglas™—view of activities, little contact.

- Third generation (minimum security):
  - Direct supervision—guard actually in constant contact;
  - Within the unit (guards)—guard integrated with jail population; and
  - Requires interpersonal skills of the guards (interaction with inmates).

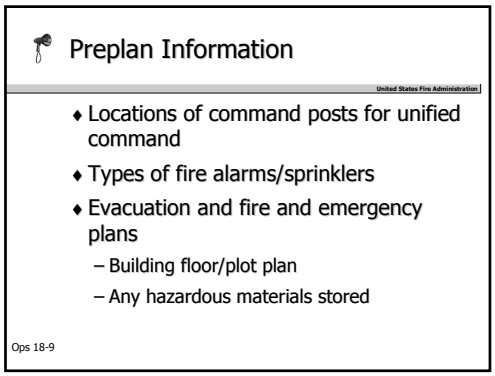
Slide 18-8: Incident Potential



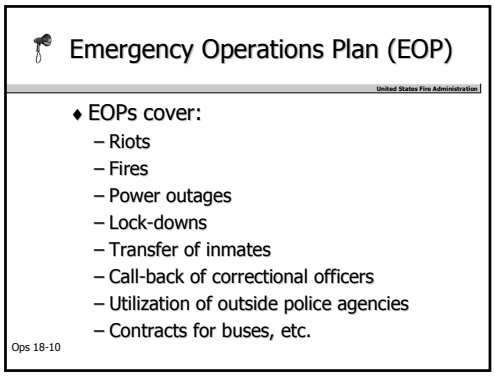
D. Incident potential

- Kitchen and related hazards—fire and life load;
- Laundry:
  - Chemicals for cleaning and
  - Drying equipment;
- Vocational shops—machinery and related equipment;
- Repair shops—power tools and torches;
- Warehouse—property room or area for guards and inmates; and
- Public assembly:
  - Open pods,
  - Induction area, and
  - Visitor area.

Slide 18-9: Preplan Information



Slide 18-10: Emergency Operations Plan



V. Preplan Information (5 minutes)

A. Locations of command posts for unified command

B. Types of fire alarms/sprinklers:

- Locations of fire flow valves and equipment;
- Locations of guards' air packs and related equipment; and
- Extent of fire protection equipment (for example, sprinklers and standpipe connections).

C. Evacuation and fire emergency plans

- Building floor/plot plan and
- Special considerations (for example, hazardous materials).

D. Penal institution EOP

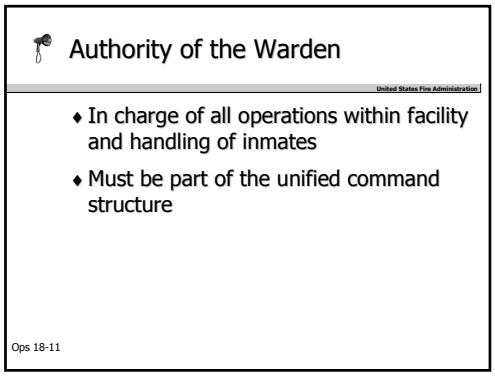
- EOPs for all types of contingencies:
  - Riots;
  - Fires;
  - Power outages;
  - Lock-downs;

* Transfer of inmates:
  - Within the facility and
  - To other facilities;
* Call-back of correctional personnel;
* Use of outside police; and
* Contracts for buses and other transportation.

- Knowledge of plan

  Fire departments and other response agencies must know and train with these plans.

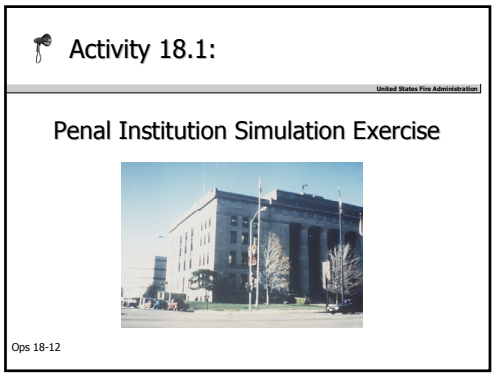
Slide 18-11: Authority of the Warden



VI. Authority of the Warden (5 minutes)

- The warden is in charge of all operations within the facility and the handling of inmates.
- The warden or a deputy must be part of the unified command structure.

Slide 18-12: Activity 18.1: Penal Institution Simulation Exercise



VII. Activity 18.1: Penal Institution Simulation Exercise and Debriefing (130 minutes)

Instructor Notes:

Refer students to Activity 18.1, Penal Institution Simulation Exercise, in their student manuals.

Activity 18.1:
Penal Institution Simulation Exercise

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a penal institution incident.

Instructor Notes:

This course is designed for the battalion chief level officers operating at target hazard incidents, which usually do not extend over several operational periods. However, if there is a desire to exercise the planning process using the expanded written incident action plan (ICS Forms 202 through 206, provided in the appendix), you will need to develop additional simulation messages (blank forms are provided) to increase the complexity and duration of the simulation.

Materials:

- Easel pads
- Markers
- Size-up visuals
- Simulation Action Chart
- Quick Access Plan (QAP)
- Plot/floor plans
- Messages (written or visual)
- Legal pads (for messages and the Planning Section Chief's Alternate Plan)
- Central City Fire/EMS Response Criteria
- Central City Alarm Resource Cards
- Central City Map
- Command worksheet (may be local agency's)

Directions:

1. **Assign the simulation groups:**

   Each group will staff the positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

- Incident Commander
- Incident Commander Aide (The IC Aide is not used unless there are nine students in a group. Some students may play multiple roles based on the Assignment sheets.)
- Operations Chief
- Operations Aide (If there are 10 students in a group, a second Operations aide will be designated.)
- Planning Chief (and Aide if there are enough students)
- Logistics Chief (and Aide if there are enough students)
- Safety Officer (and Aide if there are enough students)
- Information Officer (and Aide if there are enough students)
- Liaison Officer (and Aide if there are enough students)

Instructor Notes:

If there are more than 14 students, you can run two IMTs working separately on the same incident.

2. **Review the simulation rules:**

- The instructor briefs all IMT members on the nature and conditions of the incident before beginning the simulation. The students will leave the room and wait for their response. The first-in BC arrives 5 minutes after Engine 1, Engine 2, and Truck 1 arrive at the incident. The first-in BC and his or her aide will be on the scene 5 minutes before the arrival of the IC. After the IC receives the briefing from the BC, he or she will approve or alter the current control objectives and incident organization, determine what elements of an expanded ICS will be needed, and will call for those IMT positions. When the IC calls for that position, have the person filling the position go directly to the command post for a briefing. Total elapsed time from the arrival of the first engine company until arrival of all command staff personnel at the incident scene will be approximately 15 minutes.

- After the BC arrives, and before the IMT arrives, the initial BC must be able to brief the IMT on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

- After the IC arrives, and before the other elements of the IMT arrive, the IC must receive a briefing from the BC and approve or alter the initial IAP (control objectives, incident organization, and resource deployment and requests).

  Instructor Notes:

  The BC and IC briefing and approval of the IAP are more important than maintaining a strict time for the simulation.

- All command actions will be charted during the simulation.

3. **Review the QAP for the incident.**

4. **Show the visuals that set the scene for the incident and read Message #1 to all students.**

5. **Send the teams out of the room, except the first-in BC.**

   When the IC arrives, the first-in BC will brief the IC on the current objectives and actions, the current organization, and the resource summary that includes the type of resources, the kinds of resources, and where they are deployed at the incident.

   Following the briefing from the BC, the IC will identify the elements of the expanded ICS that will be needed and assign responding resources to fill the positions. Coach the IC in filling the appropriate positions if needed.

   The Logistics Section Chief will identify service and support needs from the Field Ops Guide (FOG) Position Checklist: food, air, tools and equipment, fuel, facilities, ground support, communications plan, medical unit and rehab, etc.

   The Planning Section Chief will identify planning needs using the FOG Position Checklist: develop an alternate plan, collect and record information, technical specialists, status of resources, situation unit, etc.

6. **Manage the simulation exercise:**

   Monitor message distribution according to the script. One instructor should act as the controller of the messages. Messages should be shown or distributed according to the times listed on each. The time in the upper right corner of each message indicates the

real-world time, which can serve as a cue for the IC. The time in the lower right corner is the time of the simulation, so a stopwatch can be used to manage the messages. The times in the lower right corner are target times. If the class is having difficulties, messages can be delayed; if the group is functioning well, the messages can be distributed a bit more quickly. Try to stay within 60 to 90 seconds of the target time for distribution of each message.

Insert additional messages as needed to stimulate strategic actions. The instructor acting as the controller can develop additional messages on the blank forms if the need arises; however, develop additional messages carefully and with consideration for messages that will follow in the simulation script. Intensify the simulation with more rapid message distribution rather than with additional messages.

You will play the role of various outside agency representatives and facilities management.

The roles played by an instructor should include:

Warden/Deputy Warden—Play the role of a prison official who is in charge of all operations concerning the movement or relocation of prisoners. You have your own Emergency Operations Plan (EOP) and intend to follow it. Two of the four prisoners in the infirmary have AIDS. When the deputy warden reports two prisoners missing, tell the IC that you have just found two firefighters who were locked in a storage room dressed only in their underwear—two of the firefighters must be prisoners tying to escape.
Facility Manager/Maintenance Person—Report to the groups, when asked, that the HVAC system can be shut down by the maintenance personnel. There are about 100 occupants in the courthouse building. The complex has two power buses, one for the courthouse and garage and one for the prison.
Power Company Rep—Power can be shut off to the building ONLY from a transformer at the corner of the property.
Police Supervisor—Make every effort to comply with assistance requests, but defer to the warden for movement of prisoners.

Coach players during operations as needed. The second instructor should circulate among the groups, offering guidance with strategy and organization. He or she should offer guidance in the form of questioning to help students think through their options.

Coaching is not intended to be an additional lecture period. Coaching is a critical function, so the instructor must circulate among the groups constantly, listening,

observing, and questioning, as required.

Monitor documentation. Confirm that students are completing their Simulation Action Charts and their ICS Organization Charts.

Simulation outcomes:

- Incident Commander: Team report
- Operations Chief: Initial action plan and organizational chart
- Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
- Planning Chief: Alternate plan
- Logistics Chief: Resource list
- Safety Officer: Safety message
- Information Officer: Press release

7. Conduct the simulation debriefing:

Establish ground rules or guidelines before the simulation debriefing:

- The instructor is in charge during the debriefing.
- The purpose is to improve future activities, not to place blame.
- Courtesy and respect must be shown by everyone to everyone.
- Not all participants must speak, but all should be permitted to. As groups make their presentations, ask other groups to ask questions about or comment on the presentations.

Instructor Notes:

Copy the Simulation Debrief Matrix and distribute it to the students. Simulation matrices identify decisions and tasks that are related to the command functions for selected messages. Although similar phrases are used to describe the decisions and tasks, the particulars will change from message to message.

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies developed as responses to the cues, and the organization and management of the incident staff. Debriefing activities focus on answering and

discussing the following questions:

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

Incident overview:

The incident occurs in a state penal facility. Approximately 400 prisoners live in 4 dormitory-room pods clustered around a central hall. The five-story building was constructed in the early 1990's at the rear of the county courthouse.

The jail security area begins on the 2nd floor and continues up to the 5th floor. Prisoners live in individual dormitory-style rooms, located around the outer wall of the pod, with sealed windows. Roll bars secure the interior of each window; Lexan™-type glazing is used in all window openings. Solid metal doors are fitted into each door opening; each room door includes a secure window. Dormitory rooms are located on the 3rd through 5th floors. The second floor houses the infirmary, property rooms, processing area, and staff offices. The pod area is open from the 2nd to the 5th floors.

A five-level parking garage is connected to the jail and courthouse on the west side of the complex. Courthouse staff numbers about 250 during business hours; about 50 to 100 visitors can be in the courthouse building under normal circumstances. A single, unsecured corridor on the 1st floor serves all three parts of the complex. The basement area of the prison houses the service areas, including kitchen, laundry facilities, and storage.

Personnel entry into the secure prison areas is through a double locking compartment in the basement, remotely controlled from a monitoring station. Television cameras scan all areas of the prison. Fire department equipment access is available through a loading area on the basement level between the pods on the north and south sides of the complex. Equipment is transported to the upper floor on secure elevators or through locked stairwells. No access is available from the 1st floor.

The incident was reported at 0945 hours on a Tuesday morning in March. The outside temperature is 48°F, with a 10 to 15 mph wind from the west. The forecast calls for rising temperatures throughout the day with an expected high of 65°F. The first alarm found heavy, black smoke throughout the 1st floor corridor connecting the complex components. Visibility is limited in the corridor, the courthouse lobby off the corridor, and the 1st floor of the courthouse. Initial communications with the courthouse maintenance staff indicate that an electrical contractor had been working on the main power supply where it entered the building between the parking garage and the jail.

Instructor Notes:

This simulation is a study in anticipation. The fire is relatively small, although it produces heavy smoke. The initial concern is the courthouse, but the prison offers potential for extensive involvement because it is above the fire location. Penal institutions offer unique circumstances to incident commanders because the prison staff remains in command during an incident. Entry times into secured areas are lengthy because security precautions are maintained, even during an emergency. Unified command with prison staff is a critical element of this activity.

Slide 18-13: Side A, courthouse front; and Side B, courthouse and view of jail pods

Slide 18-14: Common corridor between courthouse and jail pods

Slide 18-15: Side C, parking garage area; view of Side D pods

Incident priorities:

- Life safety
- Incident stabilization
- Property conservation

Strategies:

- Rescue
- Exposures
- Confinement
- Extinguishment
- Overhaul
- Ventilation
- Salvage

- Using the incident priorities and strategies, develop the control objectives.
- Develop an incident organization.
- Assign and manage resources.

Penal Institution

Quick Access Prefire Plan

Building Address: *501 Central Ave*

Building Description:
Five-story noncombustible construction 350' X 1,000'
Roof Construction:
Steel bar joist, metal decking, concrete, asphalt covering
Floor Construction:
Steel bar joist, metal decking, concrete slab

Occupancy Type:
Jail/Courthouse
Parking garage

Initial Resources Required:
1st alarm assignment

Hazards to Personnel:
Hostile occupants--commercial fire load internal exposures/courthouse

Location of Water Supply:
12-inch municipal system
Hydrants--300' apart

Available Flow:
1,500-gpm per hydrant

	Estimated Fire Flow			
Level of Involvement	10%	25%	50%	100%
Estimated Fire Flow in gpm	330	825	1,650	3,300

**Fire flow based on common corridor of 10,000 sq. feet.*

Fire Behavior Prediction:
Commercial fire load in courthouse. Horizontal and vertical exposures in jail.

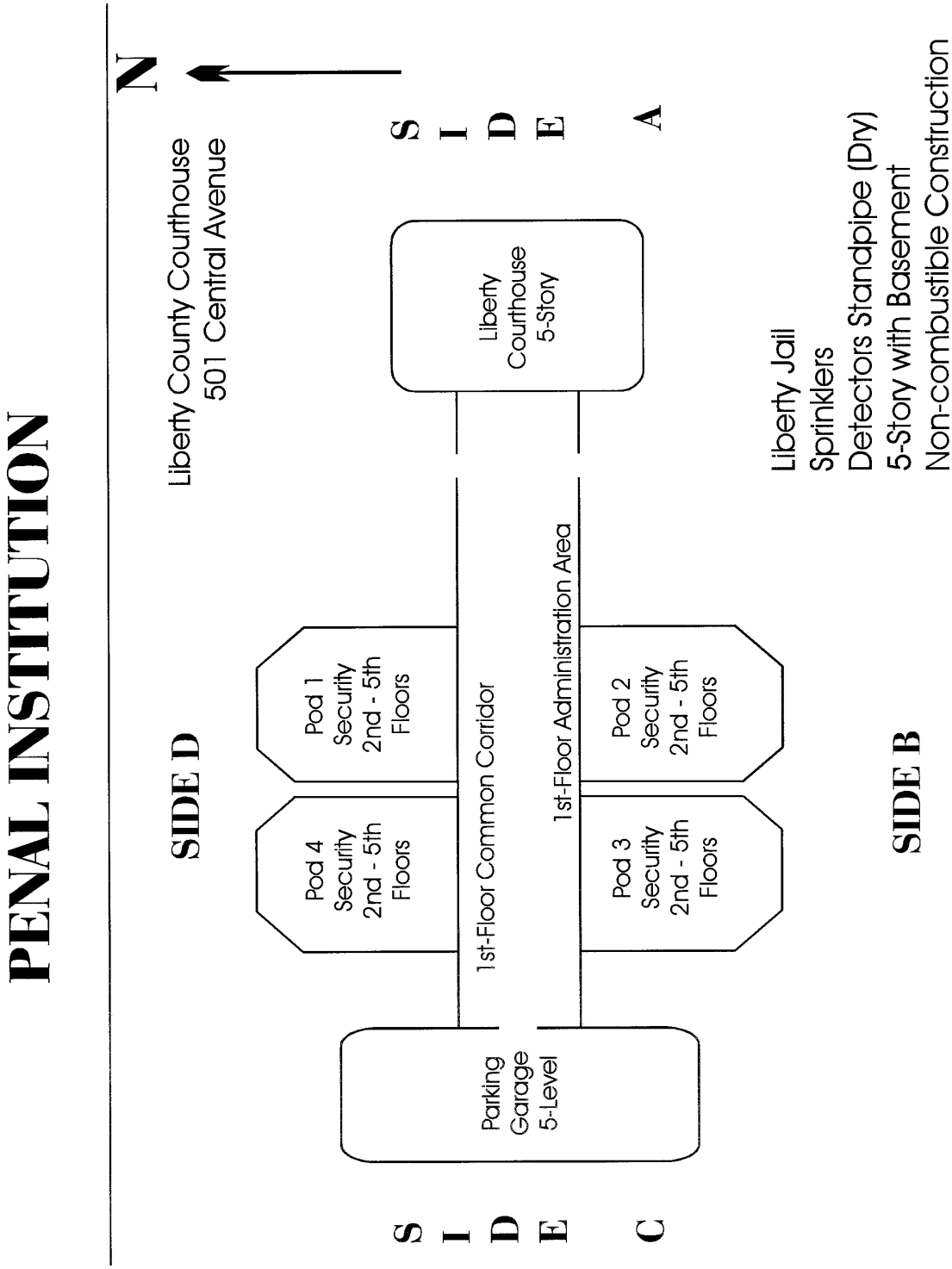
Predicted Strategies:
Rescue, confinement, extinguishment, ventilation

Problems Anticipated:
Security of occupants—set-up Unified Command.

☒ **Standpipe:**
Jail only

☒ **Sprinklers:**
Jail only

☒ **Fire Detection:**


PENAL INSTITUTION
N
Liberty County Courthouse
501 Central Avenue
SIDE D
Pod 1
Security
2nd - 5th
Floors
Pod 4
Security
2nd - 5th
Floors
1st-Floor Common Corridor
1st-Floor Administration Area
Pod 2
Security
2nd - 5th
Floors
Pod 3
Security
2nd - 5th
Floors
Parking
Garage
5-Level
SIDE C
SIDE A
Liberty
Courthouse
5-Story
SIDE B
Liberty Jail
Sprinklers
Detectors Standpipe (Dry)
5-Story with Basement
Non-combustible Construction

Central City Fire and Emergency Medical Services

Fire Resources

Overhead Positions—one Fire Chief, one Assistant Chief, one Chief Fire Marshal, seven Fire Inspectors, one Training Captain, two Training Lts., three Deputy Chiefs (1 per shift), six Battalion Chiefs (2 Battalions x 3 shifts).

Eleven engine companies—Engines 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11. Each engine company is staffed with one officer and three firefighters.

Four truck companies—Trucks 1, 3, 5, and 8. Each truck company is staffed with one officer and three firefighters.

Squad Company 1. The squad company is staffed with one officer and two firefighters fully trained in rescue practices.

Crash/Fire/Rescue Engine. Airport-staffed with one officer and two firefighters.

Engine 103, Engine 104, Engine 105, and Engine 109. Reserve Engines—fully equipped.

Truck 103. Reserve Truck—fully equipped.

Engine 104 (1,500-gpm foam pumper). Apparatus contains one 500-gallon foam tank; 400 five-gallon cans of foam are stored at Engine 4.

All members of Engine 5 and Truck 5 have been fully trained as a Hazardous Materials Response Team.

Mask Service Unit 106.

Engine 206 (light truck).

Boat 2 - 16’ Boston Whaler.

EMS Resources (third service operated by the city and stationed in the fire stations):

Three EMS supervisors – (one per shift x 3 shifts) operating out of fire station 1.

Five ALS ambulances – ALS 2, 4, 7, 9, and 11

Five BLS ambulances – BLS 3, 5, 6, 8, and 10

Central City Fire/EMS Response Criteria

1st-Alarm Resource Card — **Response time: 5 min.**

Engine 1	Truck 1	Battalion 1
Engine 2	Ambulance 2	MSU 6
Engine 3	Squad 1	

2nd-Alarm Resource Card — **Response time: 10 min.**

Engine 4	Truck 3	Battalion 2
Engine 5	Ambulance 3	Deputy Chief
Engine 6	EMS Supervisor	

3rd-Alarm Resource Card — **Response time: 15 min.**

Engine 7	Truck 5	Fire Marshal (Bn. Chief)
Engine 8	Trng. Battalion Chief	
Engine 9	Adm. Battalion Chief	

4th-Alarm Resource Card — **Response time: 15 min.**

Engine 10	Truck 8
Engine 11	

5th-Alarm Resource Card — **Response time: 20 min.**

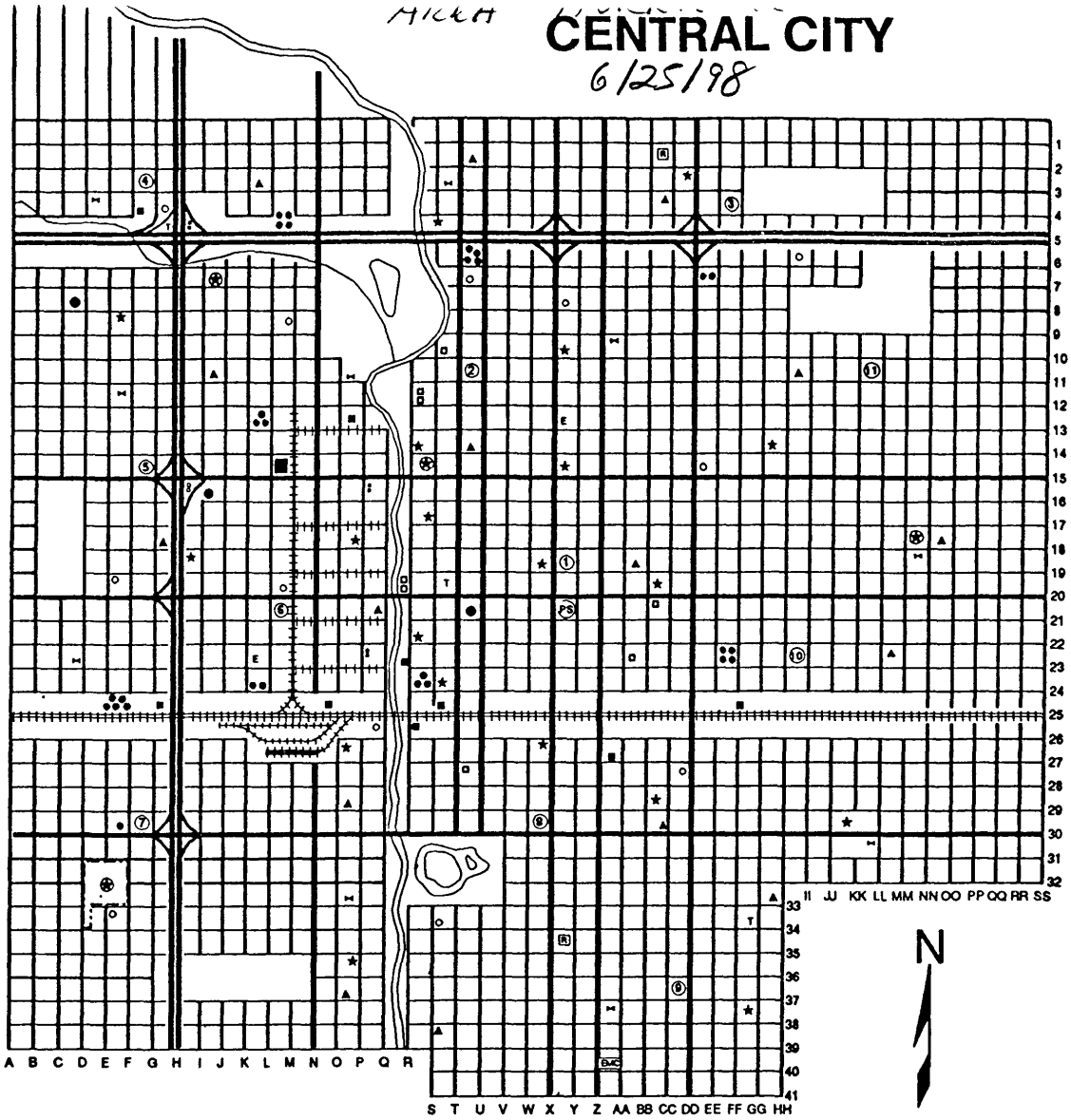
Fisherville Engine 1
Harvest Junct. Engine 2
Kingston Engine 1

6th-Alarm Resource Card — **Response time: 20 min.**

Apple Valley Engine 1
Bayport Engine 2
Jasper Engine 2

7th-Alarm Response Card — **Response time: 25 min.**

Deep Water Engine 2
Kingston Engine 3



CENTRAL CITY POLICE STATION	FIRE STATIONS	SCHOOLS
SHELTER COMPLEX HEADQUARTERS	CITY EQUIPMENT YARD	TELEPHONE SWITCHBOARDS
RELOCATION CENTERS	HEAVY EQUIPMENT AREAS	ELECTRIC POWER STATIONS
NATIONAL GUARD FACILITIES	FUEL STORAGE TANKS	RESERVOIRS
HOSPITALS	CITY TRANSPORTATION CENTERS	RADIO AND TV STATIONS
FOOD STORAGE FACILITIES	EMERGENCY MANAGEMENT CENTER	SCALE: 7 BLOCKS = 1 MILE

Instructor Notes:

These messages are examples of possible messages for the incident. You may need to adjust the content and number of messages as the incident develops, based on student capability and terminology.

SIMULATION MESSAGE

Message # 1 **Incident Time: 0950 hours**

To: Operations (Battalion Chief 1)

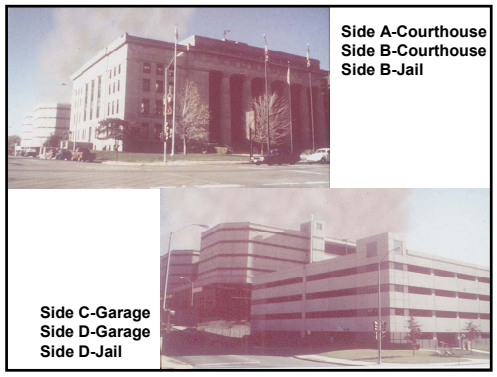
Message:

It is Tuesday, March 6, 0950 hours. Temperature 48°F. Wind is 10 to 15 mph from the west. Engine 1 reports that they are on location at the jail and have light to medium smoke coming from the courthouse. There is also heavy smoke coming through the 1st-floor corridor between the courthouse and the pod area of the jail. The volume of smoke is increasing.

Engine 1 is investigating the location of the fire; it may be electrical, according to the maintenance reports. No report of smoke in the jail at this time.

Engine 2, Truck 1 are assigned as an evacuation group in the courthouse. Engine 3, Squad, Rescue 3, MSU 6, and ALS Ambulance 2 have just arrived on the scene and have not been assigned. I have requested a second alarm.

Slide 18-16: Courthouse Sides A and B; jail Sides B and D; garage Sides C and D



Simulation Time: 00:05

SIMULATION MESSAGE

Message #2 **Incident Time: 1005 hours**

To: Operations

Message:

CCFD Incident Management Team has arrived on the scene and will be briefed by Battalion 1.

Simulation Time: 00:15

SIMULATION MESSAGE

Message #3 **Incident Time: 1007 hours**

To: Operations/Logistics/Liaison

Message:

Engine 1 reports that it has located a maintenance worker down at the west end of the 1st-floor corridor near the garage foyer. He appears to have suffered an electrical shock. The fire appears to be in the electrical bus way in the ceiling above the corridor. The smoke is getting heavier. We are evacuating the victim to the parking garage; we need EMS help. Establishing Division 1 for fire attack.

Simulation Time: 00:17

SIMULATION MESSAGE

Message #4 **Incident Time: 1009 hours**

To: Liaison/Planning

Message:

Police commander is on the scene. Do you have an assignment for police?

Simulation Time: 00:19

SIMULATION MESSAGE

Message #5 **Incident Time: 1010 hours**

To: Operations/Planning

Message:

Second alarm is in staging.

Simulation Time: 00:20

SIMULATION MESSAGE

Message #6 **Incident Time: 1011 hours**

To: Operations/Liaison/Planning

Message:

Truck 1 reports that the top floor of the courthouse has been evacuated.

Simulation Time: 00:21

SIMULATION MESSAGE

Message #7 **Incident Time: 1012 hours**

To: Operations/Liaison/Planning

Message:

Dispatch center reports that they are now getting an automatic alarm for the jail.

Simulation Time: 00:22

SIMULATION MESSAGE

Message #8 **Incident Time: 1015 hours**

To: Operations/Liaison/Safety

Message:

Captain of the jail guards reports that light smoke is now entering into the jail area.

Simulation Time: 00:25

SIMULATION MESSAGE

Message #9 **Incident Time: 1019 hours**

To: Liaison/Operations/Safety

Message:

Maintenance reports that the main power supply runs the length of the 1st-floor corridor above the ceiling and that branch feeds go to each of the four jail pods. The primary feed is located in the corridor bus way.

Simulation Time: 00:29

SIMULATION MESSAGE

Message #10 **Incident Time: 1021 hours**

To: Liaison/Operations/Safety

Message:

Power company has arrived on scene. They cannot shut down power to building. Will need to shut down supply from the substation. Jail maintenance reports that the backup generator has limited capabilities.

Simulation Time: 00:31

SIMULATION MESSAGE

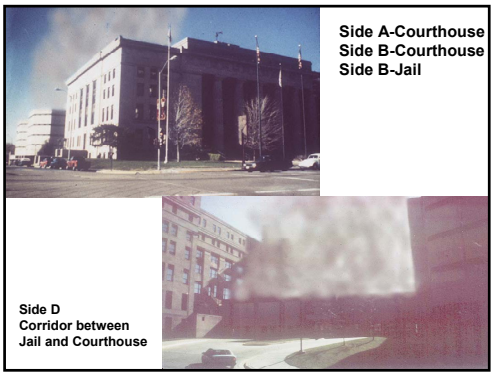
Message #11 **Incident Time: 1022 hours**

To: Operations/Planning/Safety

Message:

Division 1 reports that fire is in the ceiling of the 1st-floor corridor. There is ceiling duct work involved in fire along with the electrical bus way.

Slide 18-17: Courthouse Sides A and B; jail Side B; corridor Side D



Simulation Time: 00:32

SIMULATION MESSAGE

Message #12 **Incident Time: 1024 hours**

To: Liaison/Operations/Safety

Message:

Captain of the jail guards reports that smoke is increasing in Pods 2 and 3. He is issuing air packs to his guards. He needs to consider moving the prisoners to Pods 1 and 4, which are clear, and will need help with a move.

Simulation Time: 00:34

SIMULATION MESSAGE

Message #13 **Incident Time: 1026 hours**

To: Liaison/Logistics/Planning

Message:

Jail warden reports that the administrative offices on the 1st floor have been evacuated and the jail command post activated in the control room on the 2nd floor.

Simulation Time: 00:36

SIMULATION MESSAGE

Message #14 **Incident Time: 1028 hours**

To: Operations/Safety/Planning

Message:

Division 1 reports that there is fire in at least 100 feet of the corridor ceiling. They are trying to cut it off before it enters the courthouse.

Simulation Time: 00:38

SIMULATION MESSAGE

Message #15 **Incident Time: 1029 hours**

To: Liaison/Operations/Safety

Message:

Deputy jail administrator reports that smoke is infiltrating the infirmary on the 2nd floor, and it will have to be evacuated. Her guards will need help with the evacuation.

Simulation Time: 00:39

SIMULATION MESSAGE

Message #16 **Incident Time: 1032 hours**

To: Operations/Planning/Liaison

Message:

Evacuation group reports evacuation of the courthouse is complete. Light smoke still entering the building from the corridor fire.

Simulation Time: 00:42

SIMULATION MESSAGE

Message #17 **Incident Time: 1035 hours**

To: Liaison/Operations/Safety

Message:

Power company reports that the power to the complex has been cut at the substation. Building operating on limited power from backup generator.

Simulation Time: 00:45

SIMULATION MESSAGE

Message #18 **Incident Time: 1036 hours**

To: Liaison/Logistics/Planning

Message:

Deputy jail administrator reports that four prisoners in the infirmary must be evacuated to the Central City Hospital. She stated that two of the prisoners are contagious. She will assign guards to accompany the prisoners.

Simulation Time: 00:46

SIMULATION MESSAGE

Message #19 **Incident Time: 1039 hours**

To: Information Officer/Liaison/Incident Commander

Message:

Media have arrived. They are requesting information about the fire and contagious disease; prepare a written report.

Simulation Time: 00:49

SIMULATION MESSAGE

Message #20 **Incident Time: 1042 hours**

To: Liaison/Operations/Safety

Message:

Captain of the jail guards reports that Pods 2 and 3 have been evacuated and smoke is becoming heavier in those two areas. Pods 1 and 4 are clear of smoke at this time.

Simulation Time: 00:52

SIMULATION MESSAGE

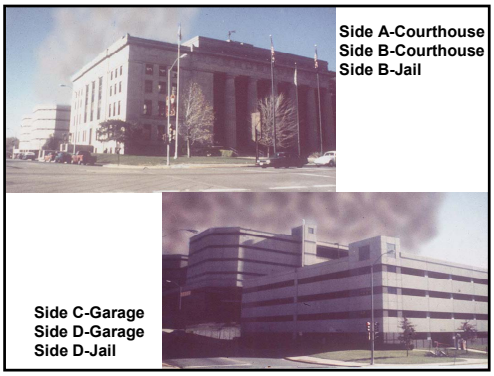
Message #21 **Incident Time: 1044 hours**

To: Operations/Planning/Safety

Message:

Division 1 reports all fire in 1st floor corridor ceiling knocked down, but still have medium smoke conditions; continuing to check for extension into the courthouse and jail areas.

Slide 18-18: Courthouse Sides A and B; jail Sides B and D; garage Sides C and D



Simulation Time: 00:54

SIMULATION MESSAGE

Message #22 **Incident Time: 1045 hours**

To: Liaison/Operations/Planning

Message:

Deputy jail administrator reports that smoke is infiltrating the jail command post room on the 2nd floor.

Simulation Time: 00:55

SIMULATION MESSAGE

Message #23 **Incident Time: 1048 hours**

To: Liaison/Operations/Safety

Message:

Warden reports that a prisoner head count indicates two prisoners missing from Pod 2. Need help with search.

Simulation Time: 00:58

SIMULATION MESSAGE

Message #24 **Incident Time: 1050 hours**

To: Operations/Safety

Message:

Division 1 reports no further fire spread towards the courthouse or jail areas.

Simulation Time: 01:00

SIMULATION MESSAGE

Message #25 **Incident Time: 1053 hours**

To: Incident Commander/Information Officer/Liaison

Message:

Dispatch center has received a phone call that a device will explode in the courthouse building within the next hour. Phone call was received from a phone booth in Central City. The caller indicated that the Power to the People (P2P) Group would rule someday.

Simulation Time: 01:03

SIMULATION MESSAGE

Message #26 **Incident Time: 1055 hours**

To: Incident Commander

Message:

Simulation over. Take 10 minutes to recap activities.

Simulation Time: 01:05

SIMULATION MESSAGE

Message # **Incident Time:**

To:

Message:

Simulation Time:

Simulation Matrix: Penal Institution		
Function	**Message # 1**	**Message # 3**
Command	Perform size-up, establish strategy, develop ICS structure. Monitor progress and evaluate strategy. Develop and improve action plan. Support operations' request for resources.	Monitor progress and evaluate strategy. Support operations' requests for resources.
Safety		Enforce safe corridors of operation. Review special considerations (type of structure/ contents/equipment/use).
Liaison	Identify personal contacts. Identify concerned agencies.	Maintain communication with agencies. Communicate on building occupant accountability.
Information		
Operations	Deploy companies. Define tactics. Determine need for additional resources. Establish fire/EMS ICS operational structure. Maintain active communication with companies.	Deploy companies. Define tactics. Determine need for additional resources. Establish fire/EMS ICS operational structure.
Planning	Predict incident progress. Predict resource needs. Maintain situation and resource status records. Work with technical specialists.	Predict incident progress. Maintain situation and resource status records.
Logistics	Anticipate breathing air needs.	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims).
Administration/ Finance		

Simulation Matrix: Penal Institution		
Function	**Message # 8**	**Message # 12**
Command	Monitor progress and evaluate strategy. Consider adjusting strategy.	Perform size-up, establish strategy, develop ICS structure. Develop and approve action plan. Support operations' request for resources.
Safety	Enforce safe corridors of operation. Review special considerations (type of structure/contents/equipment/use).	Address FF accountability. Confront tactical safety. Review special considerations (type of structure/ contents/equipment/use).
Liaison	Communicate on utilities.	Maintain communication with agencies. Communicate on building occupant accountability. Identify shelter and/or rehabilitation locations.
Information	Gather incident information. Establish media staging area.	Prepare information release.
Operations	Determine need for additional resources. Adjust tactics. Evaluate progress of operations.	Deploy companies. Define tactics. Determine need for additional resources. Establish fire/EMS ICS operational structure. Maintain active communication with companies.
Planning	Modify action plan to meet changing situation. Predict resource needs. Establish support for incident supplies: batteries, radios, tools, lighting, etc. Work with technical specialists.	Modify action plan to meet changing situation. Predict incident progress. Maintain situation and resource status records. Work with technical specialists.
Logistics	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish facilities and support for relocation and shelters.	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims).
Administration/ Finance		

Simulation Matrix: Penal Institution		
Function	**Message # 15**	**Message # 18**
Command	Monitor progress and evaluate strategy. Develop and approve action plan. Support operations' requests for resources.	Support operations' requests for resources.
Safety	Enforce safe corridors of operation. Address FF accountability.	Confront tactical safety. Review special considerations (type of structure/ contents/equipment/use).
Liaison	Maintain communication with agencies. Communicate on building occupant accountability. Identify shelter and/or relocation locations.	Maintain communication with agencies. Communicate on building occupant accountability.
Information	Maintain media contacts. Cooperate with other information officers.	Prepare information release. Conduct press briefing.
Operations	Deploy companies. Determine need for additional resources. Maintain active communication with companies. Evaluate progress of operations.	Deploy companies. Maintain active communication with companies. Evaluate progress of operations.
Planning	Predict resource needs. Maintain situation and resource status records.	Work with technical specialists. Plan for demobilization.
Logistics	Anticipate breathing air needs. Anticipate EMS requirements for triage, treatment, transport (FF and victims). Establish facilities and support for relocation and shelters. Establish support for incident supplies: batteries, radios, tools, lighting, etc.	Establish support for incident supplies: batteries, radios, tools, lighting, etc.
Administration/ Finance		Document injuries and deaths. Maintain records of outside agency participation.

Simulation Action Chart

MSSG.	TIME	ACTION TAKEN

Health and Safety Message

Incident Name:	Date Prepared:	Time Prepared:
Operational Period Date: From: To:	Operational Period Time: From: To:	

Major Hazards and Risks:

Narrative:

Prepared By;	Company Name:	ICS Position: **Safety Officer**
Approved By:	Company Name:	ICS Position:

Press Questions

What is on fire? Is the courthouse or jail involved?

_____

_____

How many employees have been injured in the courthouse?

_____

_____

How many inmates have been injured?

_____

_____

Are the inmates in danger?

_____

_____

We have a report that rioting has erupted in the prison. Is this report true?

_____

_____

We have a report that some of the inmates have escaped. Is this report true?

_____

_____

Are the firefighters in any jeopardy?

_____

_____

Where are the evacuated inmates being taken?

_____

_____

Is the Central City Police Department assisting in controlling the inmates?

_____

_____

Activity 18.1:
Penal Institution Simulation Exercise
Student Activity Worksheet

Time: 150 minutes (simulation and debrief)

Purpose:

To provide practice in using the ICS organization to manage a penal institution incident.

Directions:

1. As a group, you will staff positions within the ICS of the Central City Fire Department (CCFD) for the exercise:

    - Incident Commander
    - Incident Commander Aide (not used unless nine students in a group)
    - Operations Chief
    - Operations Aide (a second Aide designated for groups with more than 10)
    - Planning Chief
    - Logistics Chief
    - Safety Officer
    - Information Officer
    - Liaison Officer

2. You will record all command decisions and actions during the exercise on the Simulation Action Chart. Entries on the ICS chart are made in response to written or visual messages or in anticipation of problems that could surface during the incident.

    Simulation outcomes:
    - Incident Commander: Team report
    - Operations Chief: Initial action plan and organizational chart
    - Operations Aide: Command worksheet, which includes objectives, strategies and tactics and an incident map
    - Planning Chief: Alternate plan
    - Logistics Chief: Resource list
    - Safety Officer: Safety message
    - Information Officer: Press release

3. At the conclusion of the exercise, all groups will participate in a debriefing facilitated by the instructors. Your group will display both the ICS charts and Simulation Action Charts that you developed during the exercise. Be prepared to explain your reasons for your decisions.

Activity 18.1:
Penal Institution Simulation Exercise
Student Assessment Sheet

Debriefing:

Debriefings are discussions centered on the cues contained in the written and visual messages, the strategies you developed as responses to the cues, and your organization and management of the incident staff.

- What critical cues did you observe?
- What ICS organization did you develop?
- Did your group effectively prioritize responsibilities and actions?
- Did you pass information to all who needed to be aware of it?
- Did you promptly deal with messages?
- Did you identify alternate methods of performing tasks?
- Did you recognize the need for additional/outside resources?
- Did you coordinate the allocation of resources?
- Did you periodically re-evaluate resources?
- How did your actions differ from the actions in the matrix? Why did they differ?
- What are your strengths and weaknesses in working on an IMT for this incident?
- How will you apply what you learned in this exercise to preplanning for a target hazard of this type in your community?
- How will you apply what you learned in this exercise to responding to an incident at a target hazard of this type in your community?

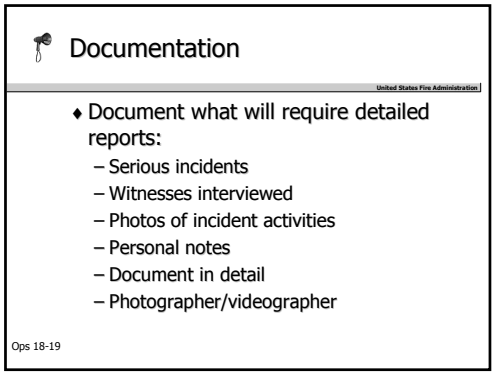
VIII. Documentation (35 minutes)

Instructor Notes:

Writing and reporting what happens at an incident for later reference is important so that you do not have to rely on memory to prove what happened. Your concise written report would document the facts for you 3 years later, the normal period for the filing of lawsuits.

One out of 300,000 incidents actually results in an exposure to liability and leads to a lawsuit.

Slide 18-19: Documentation



A. Documentation

- Matters that require detailed reports:
  - Serious incidents (for example, serious injuries, firefighter deaths, major losses);
  - Interviews with witnesses;
  - Photos of incident and activities; and
  - Personal notes at the scene and immediately following:
    - An incident where property loss is exceptionally high,
    - An injured responder or

firefighter, and

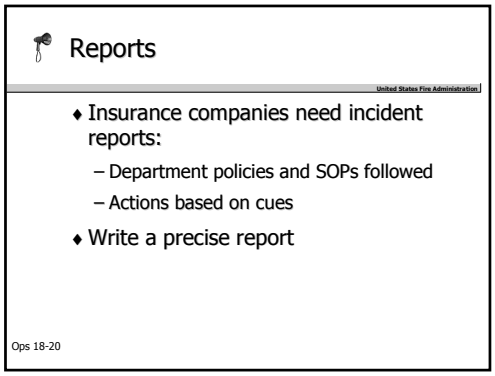
– An injured occupant.

Instructor Notes:

Detailed reports mitigate future liability problems associated with target hazards and their complexity. Litigation is always a concern.

- Documentation in detail:
  - Official reports (proof is necessary),
  - Interviews with witnesses (proof is necessary), and
  - Physical evidence—cause and origin (proof is necessary).

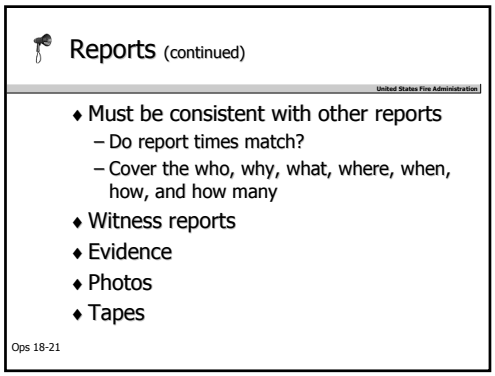
Slide 18-20: Reports



B. Reports

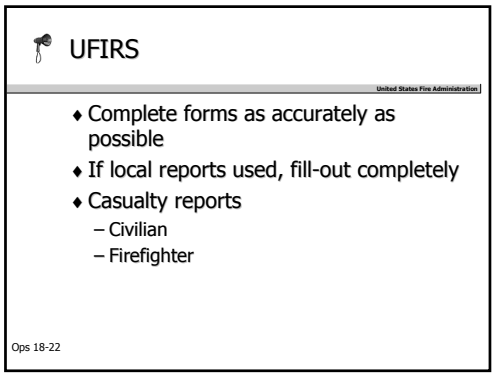
- Insurance companies need incident reports that reflect incident decisions based on department policies and reflect the need for that action based on inputs and cues.
- Write a precise report, especially if you anticipate that you will be questioned in the future.

Slide 18-21: Reports (continued)



- The report must be consistent with other documentation:
  - For instance, do the times in the report match times on your recorded dispatch tapes?
  - Who, why, what, where, when, how, and how many?
- Ask witnesses (civilian, independent from fire department) for a statement at the scene.
- Evidence—Breathalyzer™.
- Photos—every vehicle has a Polaroid™ camera.
- Tapes—communication and discovery:
  - Use audiotapes for notes and
  - Use videotapes to prove what happened.

Slide 18-22: UFIRS



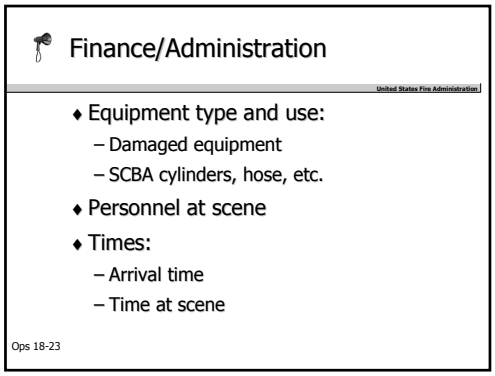
C. Uniformed Fire Incident Reporting System (UFIRS)

- If your department uses UFIRS, all personnel should be familiar with forms and required information to complete the report.
- If local reports are used in lieu of UFIRS reports, use the appropriate local form.

D. Casualty report/death/injury

- A civilian casualty report differs from the UFIRS. The civilian report is yellow and not as detailed as the firefighter casualty report.
- The firefighter/responder casualty reports are usually blue and are much more detailed in content and circumstances of the injury or death.

Slide 18-23: Finance/Administration



E. Finance/administration

- Equipment type and use:
  - Damaged equipment and numbers of units and
  - Air bottles and sections of hose.
- Personnel at the scene:

* Document the actual numbers of personnel needed; numbers may fluctuate.

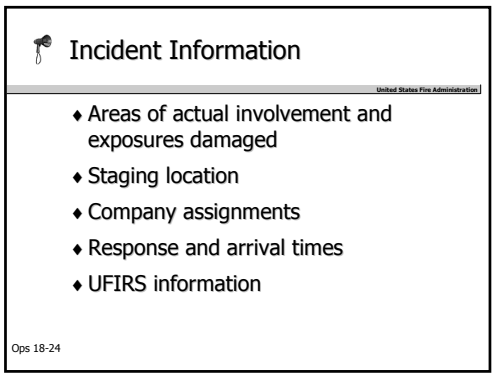
* Shift change can alter the numbers, so accuracy is necessary to reflect the target hazard need.

- Hours:

  * Arrival times and return-to-service times normally reflect the actual time spent at the incident.

  * Company size may vary from station to station. Take all variables into consideration.

Slide 18-24: Incident Information



F. Incident information

- Areas actually involved in the incident, as well as exposures that may have been affected;

- Staging location for various resources;

- Company assignments—excellent references back to the operation during a Post-Incident Analysis (PIA);

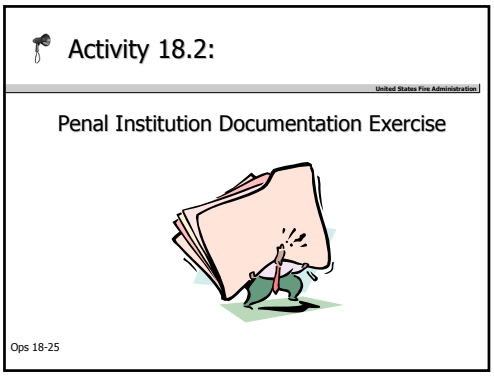
- Response and arrival times, as well as return-to-service times—all important references; and

- Valuable informative cues on the UFIRS forms:
  - Type of incident,
  - Type of action found,
  - Type of building complex, and
  - Extent of damage.

Instructor Notes:

If there is enough time, lead a discussion on the different reporting systems required by the students' communities, as well as the UFIRS.

Slide 18-25: Penal Institution Documentation Exercise



IX. Activity 18.2: Penal Institution Documentation Exercise (30 minutes)

Instructor Notes:

Refer students to Activity 18.2, Penal Institution Documentation Exercise, in their student manuals.

Activity 18.2:

Penal Institution Documentation Exercise

Time: 30 minutes

Purpose:

To use incident management materials to document actions.

Materials:

- ICS documentation used in Activity 18.1
- Student Activity Worksheets (provided in the student manuals)
- Visuals (slides of questions to answer)

Directions:

1. Ask students to get into the same groups they were in for Activity 18.1.

2. Inform all participants that some of the prisoners' families are unhappy with the fire department response and they have complained formally to the state attorney. The attorney's office has contacted the fire department and wants all reports, information, and all other relevant documentation regarding the jail fire.

3. Students will answer questions concerning their complaints. You may suggest that students start the activity by assembling a list of all staff who were involved in the incident. Students will have 15 minutes to answer the questions.

   Ensure that all groups review their materials for consistency and accuracy.

   - The groups should compare their notes and documentation, looking for consistency between dispatch information (for example, times and field reports).

   - They also may find value in listing sources for photos, videos, or other forms of information that may be available to the attorney's office in addition to the official reports.

   - If news media were present, make a complete list of print and electronic

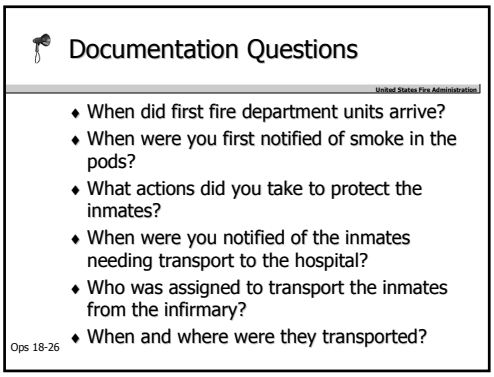
agencies represented so your attorney might track down that information.

4. Have each group report. They should list what documents they have and if they think the material is accurate, complete, and represents what the fire department actually did during the incident, as well as all activities at the scene. Some of the groups may feel their information is inadequate; have them make suggestions on how they could have increased their accuracy and filled the gaps.

Instructor Notes:

During the exercise, the groups might prioritize pieces of information differently. Ask about these differences. Why the difference? Why is it important to one group and not another? The discussion could prompt debate and provide an excellent learning experience.

Slide 18-26: Questions asked by the city attorney



Questions asked by the city attorney:

1. When did the first fire department units arrive?

2. When were you first notified of smoke in the pods?

3. What actions did you take to protect the inmates?

4. When were you notified of the inmates needing transportation to the hospital.

5. Who was assigned to transport the inmates from the infirmary?

6. When and where were they transported?

Activity 18.2:
Penal Institution Documentation Exercise
Instructor Answer Key

Questions Regarding Penal Institution Fire

By
Mr. Philip Feinzeig
Attorney-at-Law

Introduction:
Proper documentation of an incident is part of good risk management practices for the fire service. It is important to have a sufficient number of trained documentation "aides" assigned to the on-scene Incident Commander and Operations Section Chief. The proper support staff will ensure that all communications, directions, and instructions are accurately and timely logged. Further, each department must establish a consistent and systematic approach to keep track of the on-scene information. These methods may include standardized worksheets and status boards.

Subsequent to any incident where there has been a loss of life, major injuries, or significant property damage, the Incident Commander, command staff, and general staff should collect and organize all on-scene and dispatcher records and documentation. These should be carefully reviewed and any clerical errors or inconsistencies as to times or information should be clarified via footnotes or supplementary narratives. It is important that these actions take place while the incident is "fresh." During this part of the post-incident analysis, the participants should be considering the possibility of legal liability exposure.

When receiving questions from the city or town law department or any other attorneys, it is important for the responder to focus on the purpose of the inquiry. Such questions, presented in a legal environment, are usually used to lay the groundwork for potential litigation and determining the responsible parties. Senior management of the fire service must train themselves, while in the process of drafting responses to these inquiries, to "think like a lawyer."

Q: When did first fire department units arrive?

A: The records of the dispatcher indicate that the first units of the fire department arrived at _____.

Commentary: Your answers should be truthful, precise (when helpful), and to the point. The answer in this particular case focuses on the fact that the information being provided was obtained from the records of the dispatcher. Quite often it is important to reference the source of the answer (for example, dispatcher records) in order to distinguish between various logs that might be kept during an incident.

Q: When were you first notified of smoke in the pods?

A: The records of the dispatcher indicate that the dispatcher was first notified of smoke in the pods through a message from the jail staff at _____.

Alternate Q: When was the on-scene Incident Commander first notified of smoke in the pods?

Suggested Answer to Alternate Q: Upon arriving at the scene, the fire department Incident Commander met with the warden of the prison. Thereafter, unified command between the fire department and the penal institution was established. The warden designated the assistant warden, Smedlap, as his authorized representative with all authority to act on his behalf. Throughout the entire incident, the fire department was in direct contact with Assistant Warden Smedlap. Mr. Smedlap notified the fire department Incident Commander directly of the appearance of smoke in the pods at _____.

Commentary: The answer to the alternate question is careful to set the stage that another party (the prison senior management) may be equally or more responsible for the decisions and actions at the scene. In responding to this type of question, it is an appropriate place to setout that information. This is a case where including more information, as opposed to less, is helpful to the fire department.

Q: What actions did you take to protect the inmates?

A: Upon establishment of the unified command, as referenced above, Assistant Warden Smedlap advised the fire department Incident Commander and operations section chief that prison personnel would continue at all times to be responsible for the inmates and the interior of the prison. He further notified the fire department that they were not to enter the penal institution without his or the warden's express authority. At such time as

Assistant Warden Smedlap requested assistance within the interior of the penal institution and permitted the fire department to enter; the department took the appropriate actions to assist the prison personnel with their already implemented standard operating procedures for such an incident. Again, at the insistence of the senior management of the penal institution, all assistance by the fire department inside the prison was done on an "as requested and permitted" basis.

Commentary: The answer to question three takes the next step in further expounding upon the fire department's limitations at the penal institution. The response redirects the questioner to look at the restrictions (through legal authority or otherwise) that prison management placed upon the fire department on-scene actions. This again is an example of thinking about where the questioner is going with his or her inquiry and attempting to anticipate such direction in your answer.

Q: When were you notified of the inmates needing transport to the hospital?

A: Dispatch was notified by prison personnel that several inmates needed transportation to the hospital at _____.

Alternate Q: When was the Incident Commander notified of the inmates needing transport to the hospital?

Answer to Alternate Q: The Incident Commander was notified directly from Assistant Warden Smedlap at _____ that the prison infirmary physician was requesting the fire department's assistance in transporting some inmates to the hospital.

Commentary: Note in the answer to both the original and alternate questions the reference to the source that was relied upon for providing the response.

Q: Who was assigned to transport the inmates from the infirmary?

A: Based upon the specific requirements and direction of Assistant Warden Smedlap, several ambulance units of the fire department were assigned to work with prison personnel/security guards and the infirmary physician for the inmate hospital transportation needs.

Commentary: Even lawyers don't always ask questions as precisely as they intend to. The answer here is a general response that there were "several ambulance units of the fire department" assigned, which is responsive to the question. The lawyer probably intended that he or she be given the exact names of the individuals and unit numbers, but did not

ask the question precisely enough.

Q: When and where were they transported?

A: After the request from the prison infirmary physician, the inmates were transported via fire department ambulances to the hospitals predesignated by prison senior management.

Commentary: The response to this question is again correct as to the question asked, but probably does not provide all of the information that the lawyer intended. The attorney did not ask for the precise times and names of the hospitals. The answer provided is responsive to the question asked and again redirects the questioner back to senior management of the prison for the specific locations to which the fire department ambulances were **required** to deliver the inmates.

Activity 18.2:
Penal Institution Documentation Exercise
Student Activity Worksheet

Time: 30 minutes

Purpose:

To use incident management materials to document actions.

Directions:

1. You will work in the same groups you worked in for the penal institution simulation exercise.

2. Refer to the slide and the following worksheet for the questions your group should answer about the penal institution incident. You will have 15 minutes to answer the questions.

3. Some of the prisoners' families are unhappy with the fire department response, and they have complained formally to the state attorney. The attorney's office has contacted the fire department and wants all reports, information, and all other relevant documentation regarding the jail fire.

   As a group, review your materials for consistency and accuracy.

   - List all staff who were involved in the incident.

   - Compare your notes and documentation, looking for consistency between dispatch information (for example, times and field reports).

   - List sources for photos, videos, or other forms of information that may be available to the attorney's office in addition to the official reports.

   - If news media were present, make a complete list of print and electronic agencies represented so your attorney might track down that information.

4. Your instructor will ask your group to report to the class.

Questions Asked by the City Attorney

1. When did the first fire department units arrive?

_____

_____

_____

2. When were you first notified of smoke in the pods?

_____

_____

_____

3. What actions did you take to protect the inmates?

_____

_____

_____

4. When were you notified of the inmates needing transportation to the hospital.

_____

_____

_____

5. Who was assigned to transport the inmates from the infirmary?

_____

_____

_____

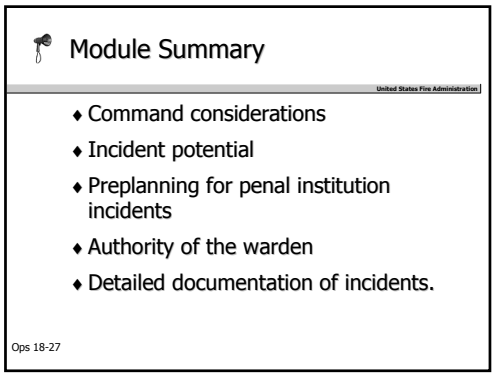
6. When and where were they transported?

_____

_____

_____

Slide 18-27: Module Summary



X. Module Summary (5 minutes)

Instructor Notes:

Briefly summarize the module and provide the students an opportunity to comment or ask questions.

Topics covered in the module included:

- Command considerations,
- Incident potential,
- Preplanning for penal institution incidents,
- Authority of the warden, and
- Detailed documentation of incidents.

MODULE 18

APPENDIX

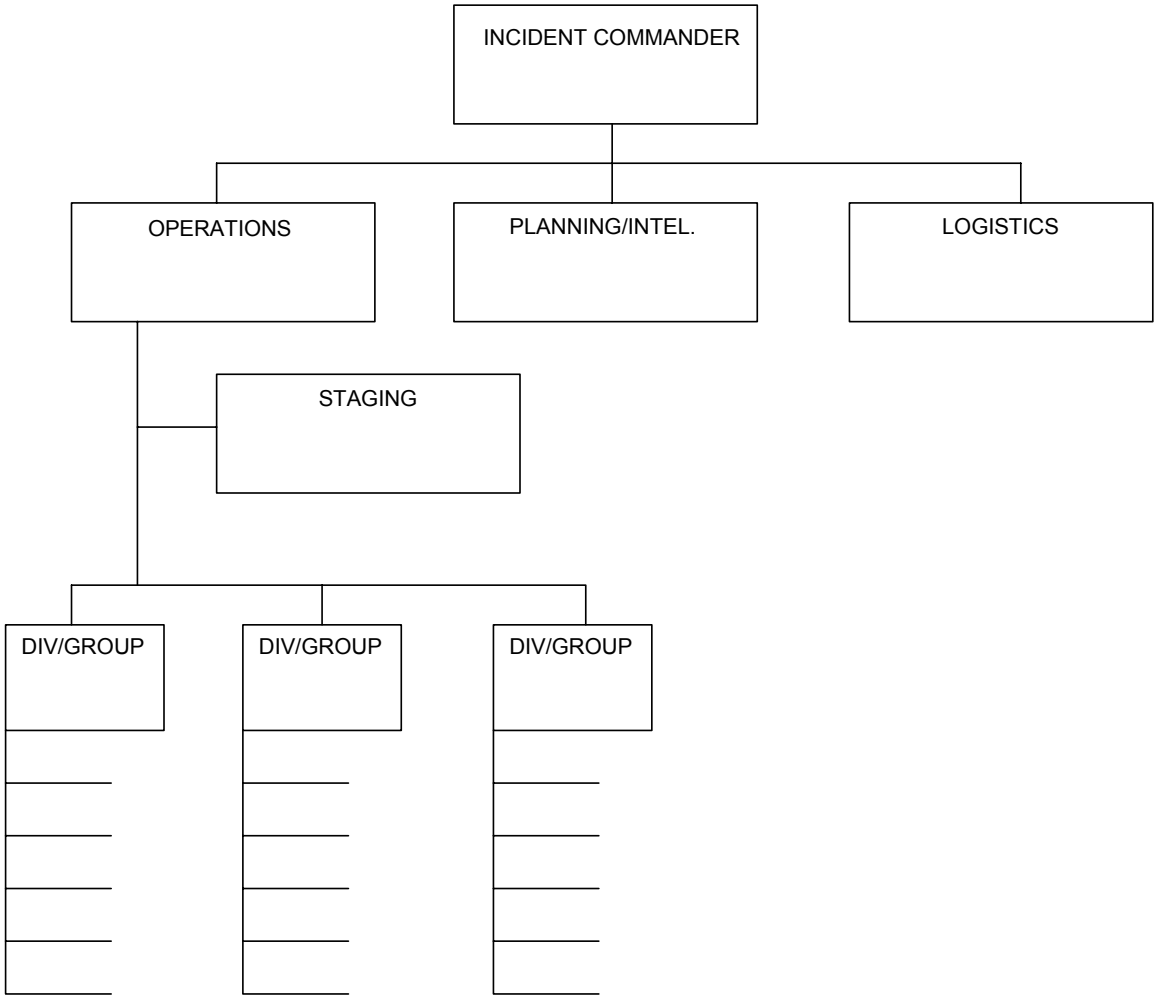
ICS FORMS 201 — 206

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. MAP SKETCH			

ICS 201	PAGE 1	8. PREPARED BY (NAME AND POSITION)

7. SUMMARY OF CURRENT OBJECTIVES AND ACTIONS		
CURRENT OBJECTIVES:		
CURRENT ACTIONS:		
ICS 201	PAGE 2	

6. CURRENT ORGANIZATION



ICS 201	PAGE 3	

5. RESOURCES SUMMARY				
RESOURCES ORDERED	RESOURCE IDENTIFICATION	ETA	ON SCENE √	LOCATION/ASSIGNMENT
ICS 201	PAGE 4			

INCIDENT OBJECTIVES	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
4. OPERATIONAL PERIOD (DATE/TIME)			
5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)			
6. WEATHER FORECAST FOR OPERATIONAL PERIOD			
7. GENERAL SAFETY MESSAGE			
8. ATTACHMENTS (CHECK IF ATTACHED)			
☐ ORGANIZATION LIST (ICS 203) ☐ ASSIGNMENT LIST (ICS 204) ☐ COMMUNICATIONS PLAN (ICS 205)	☐ MEDICAL PLAN (ICS 206) ☐ INCIDENT MAP ☐ TRAFFIC PLAN	☐ _____ ☐ _____ ☐ _____	
ICS 202	9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)	

ORGANIZATION ASSIGNMENT LIST	1. INCIDENT NAME	2. DATE PREPARED	3 TIME PREPARED
POSITION NAME 5. INCIDENT COMMANDER AND STAFF	4. OPERATIONAL PERIOD (DATE/TIME)		

INCIDENT COMMANDER	
DEPUTY	
SAFETY OFFICER	
INFORMATION OFFICER	
LIAISON OFFICER	

6. AGENCY REPRESENTATIVES

AGENCY	NAME

7. PLANNING SECTION	
CHIEF	
DEPUTY	
RESOURCES UNIT	
SITUATION UNIT	
DOCUMENTATION UNIT	
DEMOB UNIT	
TECHNICAL SPECIALISTS	

8. LOGISTICS SECTION	
CHIEF	
DEPUTY	
A. SUPPORT BRANCH	
DIRECTOR	
SUPPLY UNIT	
FACILITIES UNIT	
GROUND SUPPORT UNIT	
B. SERVICE BRANCH	
DIRECTOR	
COMMUNICATIONS UNIT	
MEDICAL UNIT	
FOOD UNIT	

9. OPERATIONS SECTION		
CHIEF		
DEPUTY		
A. BRANCH I – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
B. BRANCH II – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
C. BRANCH III – DIVISION/GROUPS		
BRANCH DIRECTOR		
DEPUTY		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
DIVISION/GROUP		
D. AIR OPERATIONS BRANCH		
AIR OPS BRANCH DIRECTOR		
AIR TACTICAL GRP SUP.		
AIR SUPPORT GRP. SUP.		
HELICOPTER CRD.		
AIR TNKER/FIX-WNG CRD.		
10. FINANCE SECTION		
CHIEF		
DEPUTY		
TIME UNIT		
PROCUREMENT UNIT		
COMPENS./CLAIMS UNIT		
COST UNIT		

ICS 203	PREPARED BY (RESOURCES UNIT)

1. BRANCH	2. DIVISION/GROUP	**ASSIGNMENT LIST**
3. INCIDENT NAME		4. OPERATIONAL PERIOD DATE: _____ TIME: _____

5. OPERATIONS PERSONNEL

OPERATIONS CHIEF _____ DIVISION/GROUP SUPERVISOR _____

BRANCH DIRECTOR _____ AIR TACTICAL GROUP SUPERVISOR _____

6. RESOURCES ASSIGNED THIS PERIOD

STRIKE TEAM/TASK FORCE RESOURCE DESIGNATOR	LEADER	NUMBER PERSONS	TRANS. NEEDED	DROP OFF PT/TIME	PICK UP PT/TIME

7. CONTROL OPERATIONS

8. SPECIAL INSTRUCTIONS

9. DIVISION/GROUP COMMUNICATIONS SUMMARY

FUNCTION		FREQ.	SYSTEM	CHAN.	FUNCTION		FREQ.	SYSTEM	CHAN.
CMMD	LOCAL REPEAT				SUPPORT	LOCAL REPEAT			
DIV/GROUP TACTICAL					GROUND-TO-AIR				

PREPARED BY (RESOURCES UNIT LDR.)	APPROVED BY (PLANNING SECTION CHIEF)	DATE	TIME

ICS Form 204

INCIDENT RADIO COMMUNICATIONS PLAN	1. INCIDENT NAME	2. DATE/TIME PREPARED	3. OPERATIONAL PERIOD DATE/TIME

4. BASIC RADIO CHANNEL UTILIZATION

SYSTEM/CACHE	CHANNEL	FUNCTION	FREQUENCY	ASSIGNMENT	REMARKS

205 ICS 9/86	5. PREPARED BY (COMMUNICATIONS UNIT)

MEDICAL PLAN	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED	4. OPERATIONAL PERIOD

5. INCIDENT MEDICAL AID STATIONS

MEDICAL AID STATIONS	LOCATION	PARAMEDICS	

6. TRANSPORTATION

A. AMBULANCE SERVICES

NAME	ADDRESS	PHONE	PARAMEDICS	
			YES	NO

B. INCIDENT AMBULANCES

NAME	LOCATION	PARAMEDICS	
		YES	NO

7. HOSPITALS

NAME	ADDRESS	TRAVEL TIME		PHONE	HELIPAD		BURN CENTER	
		AIR	GRND		YES	NO	YES	NO

8. MEDICAL EMERGENCY PROCEDURES

ICS 206	9. PREPARED BY (MEDICAL UNIT LEADER)	10. REVIEWED BY (SAFETY OFFICER)

TESTS

TESTS

MODULES 9 THROUGH 18

Operations

Module 9: Nursing Home Simulation Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. In response to incident cues at a nursing home incident, you may need to establish _____.

   A. A vent group
   B. A triage unit
   C. A transportation group
   D. A medical group

2. Of the following statements, which is true for Class I standpipe systems in nursing homes?

   A. They are designed for fire department primary use.
   B. They provide adequate working pressure.
   C. Any equipment attached to them is comparable to fire department standards.
   D. They provide minimal water supply.

3. Means of egress should be noted in nursing home preplans. What is the minimum number of means of egress required?

   A. 3
   B. 2
   C. 4
   D. 1

4. Of the following types of nursing home construction, which creates the likelihood that the fire will be contained to one floor?

   A. Type III—Ordinary
   B. Type V—Wood frame
   C. Type II—Noncombustible
   D. Type IV—Heavy timber

5. Multiple stair shafts are common in many multistory nursing homes. What should you remember about stair shafts?

   A. Most stair shafts can be used to exhaust smoke from the building.
   B. Not all stair shafts in the building provide access to the roof.
   C. Conduct fire attack and occupant evacuation from the same stairway.
   D. Narrow stair shafts make air seals difficult to obtain.

Operations

Module 10: Bulk Storage Facility/Tank Farm Simulation Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. A good rule of thumb for the distance a boilover may travel is _____ times the diameter of the tank.

   A. 5
   B. 10
   C. 12
   D. 15

2. "Certain [of these tanks] have geodetic tops as protective coverings" describes which type of tanks?

   A. Cone roof tanks
   B. Open floating roof tanks
   C. Covered floating roof tanks
   D. Fixed roof tanks

3. Fires burning in PVVs with a yellow or orange flame and emitting black smoke can be extinguished readily with _____.

   A. A dry chemical
   B. Cooling water
   C. Alcohol-resistant foam
   D. Fuel gas

4. _____ have a vapor space between the liquid and the underside of the roof.

   A. Fixed roof tanks
   B. Open floating roof tanks
   C. Cone roof tanks
   D. Covered floating roof tanks

5. Loading asphalt into a tank that contains some water may cause _____.

   A. Boilover
   B. Slopover
   C. Sinking roof
   D. Frothover

Operations

Module 11: Structural Collapse Simulation Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. "The minimum capability to conduct safe and effective search and rescue operations at structural collapse incidents involving the collapse or failure of reinforced or unreinforced masonry, concrete tilt-up, and heavy timber construction" describes which of the following operational levels?

   A. Basic
   B. Light
   C. Medium
   D. Heavy

2. _____ collapses most commonly create lean-to void spaces.

   A. Roof
   B. Walls
   C. Beams
   D. Ceilings

3. Place the letter of the type of rescue listed on the right in the blank in front of its description on the left.

_____	Involves potential asphyxiation	A. Rope
_____	Involves areas where cables are being buried	B. Confined space
_____	Involves ravines, caves, or towers	C. Trench

4. In a long-term rescue in a structural collapse, two common physical threats that can be encountered are atmospheric contamination and _____.

   A. Dehydration and inadequate nutrition
   B. Overeating and inadequate nutrition
   C. Headaches and inadequate nutrition
   D. Overeating and dehydration

5. Place the letter of the type of construction listed on the right in the blank in front of its description on the left.

_____	Skeletal structural frame	A. Pre-cast
_____	Structural supports include integrated concrete columns	B. Heavy-floor
_____	Relies on single or multipoint connections	C. Light-frame

Operations

Module 12: Terrorist Incident Simulation Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. The _____ sets forth lines of authority and organizational relationships and shows how all actions will be coordinated.

   A. EOP
   B. SSHP
   C. SOP
   D. EOC

2. "They are usually disseminated as vapors or as a gas and thus will dissipate with time" describes _____.

   A. Biological agents
   B. Chemical agents
   C. Radiological materials
   D. Nuclear materials

3. The first indication that there may be NBC agents involved in an incident is _____.

   A. A terrorist threat
   B. Odor
   C. Symptoms in victims
   D. Indicated with detection equipment

4. In many ways, _____ behave like some chemical agents.

   A. Nerve agents
   B. Toxins
   C. Radiological materials
   D. Blood agents

5. The recognition, collection, and _____ of physical evidence may be the only means to identify those responsible for a terrorist incident.

   A. Documentation
   B. Preservation
   C. Removal
   D. Confiscation

Operations

Module 13: Enclosed Mall Simulation Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. Mall fires require long attack line stretches. How long?

   A. 200 to 500 feet
   B. 200 to 400 feet
   C. 300 to 500 feet
   D. 300 to 600 feet

2. The best type of preplanning for malls is participation in the planning and construction phases of the project. Ensure that adequate water supply, fire department access, and _____ have been considered.

   A. Security
   B. Ventilation
   C. Fire load
   D. Life safety

3. Most major building codes require building components to be protected. Protection can range from _____.

   A. 2 to 4 hours
   B. 1 to 3 hours
   C. 1 to 5 hours
   D. 2 to 5 hours

4. _____ may allow for rapid, undetected fire spread and require effective search for the fire.

   A. Breached fire walls
   B. Maze-like storage rooms
   C. High-rise structures opening directly into the mall
   D. Open ceilings

5. Place the letter of the term on the right in the blank in front of the phrase on the left that describes it.

_____	False fronts	A. Roof top dangers
_____	Haz mat	B. Fire department can control
_____	Class A combustibles	C. Fire load

Operations

Module 14: Public Assembly/Mass Casualty Simulation Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. Which of the following statements is true for a mass casualty incident?

   A. Take minor injuries to the closest facility as soon as possible.
   B. Volunteers are direct personnel resources.
   C. Police may be used to drive medical vehicles.

2. A _____ should be a learning experience.

   A. Debrief
   B. Critique
   C. Transition
   D. Withdrawal

3. Assembly occupancies include, but are not limited to, all buildings used for gathering together _____ or more persons for such purposes as deliberation, worship, or entertainment.

   A. 100
   B. 75
   C. 50

4. Characteristics of assembly design include large, unbroken areas; below-grade assembly areas; and _____.

   A. Tents
   B. Concrete/steel atriums
   C. Steel bar joists
   D. Multiple levels of occupancy

5. Place the letter of the target hazard on the right in the blank in front of the corresponding preparedness issue on the left.

_____	Obtain list of haz mat on site	A. Highway spans
_____	Emphasize security	B. Chemical plant
_____	Consider the other jurisdiction	C. Prison

Operations

Module 15: High-Rise Simulation Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. Roofs in high-rise buildings are required to have _____ fire-resistive rating.

   A. At least a 2-hour
   B. A 1- to 3-hour
   C. A 2- to 4-hour
   D. At least a 3-hour

2. Which of the following statements is false?

   A. In older buildings, the emergency power may supply only exit lighting in the stair shafts.
   B. An elevator equipped with firefighter service is a safe elevator.
   C. Safety procedures in high-rise fires include using split-bank elevators that terminate at least five floors below the lowest reported fire floor.
   D. A good rule-of-thumb is to give the Incident Commander an update every two to three floors during ascent.

3. Place the letter of the fire behavior on the right in the blank in front of its description on the left.

_____	When the fire generates enough heat to break out windows and roll out the fire floor and up the outside of the building	A. Core-construction effect B. Negative stack effect C. Auto extension
_____	When the fire circles behind firefighters, cutting off their escape route	
_____	When the smoke is pushed down vertical shafts or settles on floors below the fire	

4. Normally, staging is located _____ floors below the fire floor to minimize the time-distance factor.

A. Two

B. Three

C. Four

D. Five

5. Place the letter of the style of high-rise construction on the right in the blank in front of its description on the left.

_____	Upper-level walls tapered	A. Core
_____	May have scissor stair shafts	B. New style
_____	Stair shafts commonly placed in center of steel skeleton	C. Old style

Operations

Module 16: Dormitory Simulation Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. Blind, covered up stairwells or shaft ways are common in which type of dormitory construction?

   A. Ordinary
   B. Mixed
   C. Noncombustible

2. Masonry buildings rarely exceed _____ stories in height.

   A. Five
   B. Six
   C. Ten
   D. Twelve

3. The recommended schedule for evacuation drills in dormitories is _____.

   A. Monthly
   B. Bi-monthly
   C. Quarterly
   D. Every six months

4. Void spaces are inherent in _____ construction.

   A. Ordinary
   B. Mixed
   C. Noncombustible

5. "The combustible attic may provide a path by which fire may pass over the top of the wall" describes a firefighting problem in which type of dormitory construction?

   A. Ordinary and mixed
   B. Noncombustible and mixed
   C. Ordinary
   D. Noncombustible

Operations

Module 17: Grain Elevator Simulation Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. "Reinforced concrete, multistory" describes which of the following structures associated with grain elevators?

   A. Silos
   B. Head house
   C. Offices

2. "Corrugated metal roof and siding" describes which of the following structures associated with grain elevators?

   A. Silos
   B. Head house
   C. Offices

3. Which of the following structures associated with grain elevators may be of ordinary construction?

   A. Silos
   B. Head house
   C. Offices

4. When water is used to extinguish a grain elevator fire, it should be applied _____.

   A. Rapidly
   B. Gently and slowly
   C. In fans from two sides

5. Which of the following statements is true?

   A. Because grain fires generate great heat, locating the seat of the fires is easy.
   B. In large, stubborn elevator fires, the elevator sometimes is sealed off and CO_2 is injected from the top.
   C. Interior offensive attack is never recommended.

Operations

Module 18: Penal Institution Exercise

Test

Name: _____ **Date:** _____

Directions: Circle the letter of the correct answer in the following questions.

1. Incident command considerations for a penal institution incident will evolve in a way similar to a(n) _____ incident.

   A. Dormitory
   B. Hazardous materials
   C. EMS
   D. Mass casualty

2. "Confinement involves indirect, intermittent supervision" describes _____.

   A. First-generation confinement
   B. Second-generation confinement
   C. Third-generation confinement

3. "Plexiglas™ separates guards from inmates" describes _____.

   A. First-generation confinement
   B. Second-generation confinement
   C. Third-generation confinement

4. “There are guards within the units” describes _____.

   A. First-generation confinement
   B. Second-generation confinement
   C. Third-generation confinement

5. Detention centers are often _____ structures of one to three stories.

   A. Type I—fire restrictive
   B. Type III—ordinary
   C. Type V—frame construction

ANSWER KEYS

ANSWER KEYS

MODULES 9 THROUGH 18

Operations

Module 9: Nursing Home Simulation Exercise

Answer Key

1. In response to incident cues at a nursing home incident, you may need to establish _____.

   A. **A vent group (SM 9-11)**
   B. A triage unit
   C. A transportation group
   D. A medical group

2. Of the following statements, which is true for Class I standpipe systems in nursing homes?

   A. They are designed for fire department primary use.
   B. They provide adequate working pressure.
   C. Any equipment attached to them is comparable to fire department standards.
   D. **They provide minimal water supply. (SM 9-5)**

3. Means of egress should be noted in nursing home preplans. What is the minimum number of means of egress required?

   A. 3
   B. **2 (SM 9-6)**
   C. 4
   D. 1

4. Of the following types of nursing home construction, which creates the likelihood that the fire will be contained to one floor?

   A. Type III—Ordinary
   B. Type V—Wood frame
   C. **Type II—Noncombustible (SM 9-3)**
   D. Type IV—Heavy timber

5. Multiple stair shafts are common in many multistory nursing homes. What should you remember about stair shafts?

   A. Most stair shafts can be used to exhaust smoke from the building.
   B. **Not all stair shafts in the building provide access to the roof. (SM 9-7)**
   C. Conduct fire attack and occupant evacuation from the same stairway.
   D. Narrow stair shafts make air seals difficult to obtain.

Operations

Module 10: Bulk Storage Facility/Tank Farm Simulation Exercise

Answer Key

1. A good rule of thumb for the distance a boilover may travel is _____ times the diameter of the tank.

   A. 5
   B. **10 (SM 10-7)**
   C. 12
   D. 15

2. "Certain [of these tanks] have geodetic tops as protective coverings" describes which type of tanks?

   A. Cone roof tanks
   B. **Open floating roof tanks (SM 10-3)**
   C. Covered floating roof tanks
   D. Fixed roof tanks

3. Fires burning in PVVs with a yellow or orange flame and emitting black smoke can be extinguished readily with _____.

   A. **A dry chemical (SM 10-6)**
   B. Cooling water
   C. Alcohol-resistant foam
   D. Fuel gas

4. _____ have a vapor space between the liquid and the underside of the roof.

   A. Fixed roof tanks
   B. Open floating roof tanks
   C. **Cone roof tanks (SM 10-5)**
   D. Covered floating roof tanks

5. Loading asphalt into a tank that contains some water may cause _____.

   A. Boilover
   B. Slopover
   C. Sinking roof
   D. **Frothover (SM 10-8)**

Operations

Module 11: Structural Collapse Simulation Exercise

Answer Key

1. "The minimum capability to conduct safe and effective search and rescue operations at structural collapse incidents involving the collapse or failure of reinforced or unreinforced masonry, concrete tilt-up, and heavy timber construction" describes which of the following operational levels?

   A. Basic
   B. Light
   C. **Medium (SM 11-25)**
   D. Heavy

2. _____ collapses most commonly create lean-to void spaces.

   A. Roof
   B. **Walls (SM 11-5)**
   C. Beams
   D. Ceilings

3. Place the letter of the type of rescue listed on the right in the blank in front of its description on the left.

B (SM 11-31)	Involves potential asphyxiation	A. Rope
C (SM 11-31)	Involves areas where cables are being buried	B. Confined space
A (SM 11-31)	Involves ravines, caves, or towers	C. Trench

4. In a long-term rescue in a structural collapse, two common physical threats that can be encountered are

   _____ and _____.

   A. **Dehydration and inadequate nutrition (SM 11-10)**

   B. Overeating and inadequate nutrition

   C. Headaches and inadequate nutrition

   D. Overeating and dehydration

5. Place the letter of the type of construction listed on the right in the blank in front of its description on the left.

C (SM 11-52)	Skeletal structural frame	A. Pre-cast
B (SM 11-52)	Structural supports include integrated concrete columns	B. Heavy-floor
A (SM 11-52)	Relies on single or multipoint connections	C. Light-frame

Operations

Module 12: Terrorist Incident Simulation Exercise

Answer Key

1. The _____ sets forth lines of authority and organizational relationships and shows how all actions will be coordinated.

   A. **EOP (SM 12-4)**
   B. SSHP
   C. SOP
   D. EOC

2. "They are usually disseminated as vapors or as a gas and thus will dissipate with time" describes _____.

   A. Biological agents
   B. **Chemical agents (SM 12-15)**
   C. Radiological materials
   D. Nuclear materials

3. The first indication that there may be NBC agents involved in an incident is _____.

   A. A terrorist threat
   B. Odor
   C. **Symptoms in victims (SM 12-20)**
   D. Indicated with detection equipment

4. In many ways, _____ behave like some chemical agents.

   A. Nerve agents
   B. Toxins
   C. **Radiological materials (SM 12-10)**
   D. Blood agents

5. The recognition, collection, and _____ of physical evidence may be the only means to identify those responsible for a terrorist incident.

   A. Documentation
   B. **Preservation (SM 12-24)**
   C. Removal
   D. Confiscation

Operations

Module 13: Enclosed Mall Simulation Exercise

Answer Key

1. Mall fires require long attack line stretches. How long?

   A. 200 to 500 feet
   B. 200 to 400 feet
   C. **300 to 500 feet (SM 13-7)**
   D. 300 to 600 feet

2. The best type of preplanning for malls is participation in the planning and construction phases of the project. Ensure that adequate water supply, fire department access, and _____ have been considered.

   A. Security
   B. Ventilation
   C. Fire load
   D. **Life safety (SM 13-4 to 13-5)**

3. Most major building codes require building components to be protected. Protection can range from _____.

   A. 2 to 4 hours
   B. **1 to 3 hours (SM 13-3)**
   C. 1 to 5 hours
   D. 2 to 5 hours

4. _____ may allow for rapid, undetected fire spread and require effective search for the fire.

   A. Breached fire walls
   B. Maze-like storage rooms
   C. High-rise structures opening directly into the mall
   D. **Open ceilings (SM 13-4)**

5. Place the letter of the term on the right in the blank in front of the phrase on the left that describes it.

A (SM 13-7) False fronts	A. Roof top dangers
B (SM 13-5) Haz mat	B. Fire department can control
C (SM 13-4) Class A combustibles	C. Fire load

Operations

Module 14: Public Assembly/Mass Casualty Simulation Exercise

Answer Key

Name: _____ **Date:** _____

1. Which of the following statements is true for a mass casualty incident?

   A. Take minor injuries to the closest facility as soon as possible.
   B. Volunteers are direct personnel resources.
   C. **Police may be used to drive medical vehicles. (SM 14-10)**

2. A _____ should be a learning experience.

   A. Debrief
   B. **Critique (SM 14-18)**
   C. Transition
   D. Withdrawal

3. Assembly occupancies include, but are not limited to, all buildings used for gathering together _____ or more persons for such purposes as deliberation, worship, or entertainment.

   A. 100
   B. 75
   C. **50 (SM 14-3)**

4. Characteristics of assembly design include large, unbroken areas; below-grade assembly areas; and _____.

   A. Tents

   B. Concrete/steel atriums

   C. Steel bar joists

   D. **Multiple levels of occupancy (SM 14-5)**

5. Place the letter of the target hazard on the right in the blank in front of the corresponding preparedness issue on the left.

B (SM 14-6)	Obtain list of haz mat on site	A. Highway spans
C (SM 14-6)	Emphasize security	B. Chemical plant
A (SM 14-9)	Consider the other jurisdiction	C. Prison

Operations

Module 15: High-Rise Simulation Exercise

Answer Key

1. Roofs in high-rise buildings are required to have _____ fire-resistive rating.

   A. **At least a 2-hour (SM 15-10)**
   B. A 1- to 3-hour
   C. A 2- to 4-hour
   D. At least a 3-hour

2. Which of the following statements is false?

   A. In older buildings, the emergency power may supply only exit lighting in the stair shafts.
   B. **An elevator equipped with firefighter service is a safe elevator. (SM 15-20)**
   C. Safety procedures in high-rise fires include using split-bank elevators that terminate at least five floors below the lowest reported fire floor.
   D. A good rule-of-thumb is to give the Incident Commander an update every two to three floors during ascent.

3. Place the letter of the fire behavior on the right in the blank in front of its description on the left.

C (SM 15-38)	When the fire generates enough heat to break out windows and roll out the fire floor and up the outside of the building	A. Core-construction effect B. Negative stack effect C. Auto extension
A (SM 15-39)	When the fire circles behind firefighters, cutting off their escape route	
B (SM 15-38)	When the smoke is pushed down vertical shafts or settles on floors below the fire	

4. Normally, staging is located _____ floors below the fire floor to minimize the time-distance factor.

   A. **Two (SM 15-42)**

   B. Three

   C. Four

   D. Five

5. Place the letter of the style of high-rise construction on the right in the blank in front of its description on the left.

C (SM 15-4)	Upper-level walls tapered	A. Core
B (SM 15-6)	May have scissor stair shafts	B. New style
A (SM 15-4 to 15-5)	Stair shafts commonly placed in center of steel skeleton	C. Old style

Operations

Module 16: Dormitory Simulation Exercise

Answer Key

1. Blind, covered up stairwells or shaft ways are common in which type of dormitory construction?

   A. Ordinary
   B. **Mixed (SM 16-6)**
   C. Noncombustible

2. Masonry buildings rarely exceed _____ stories in height.

   A. Five
   B. **Six (SM 16-4)**
   C. Ten
   D. Twelve

3. The recommended schedule for evacuation drills in dormitories is _____.

   A. **Monthly (SM 16-6)**
   B. Bi-monthly
   C. Quarterly
   D. Every six months

4. Void spaces are inherent in _____ construction.

   A. **Ordinary (SM 16-4)**
   B. Mixed
   C. Noncombustible

5. "The combustible attic may provide a path by which fire may pass over the top of the wall" describes a firefighting problem in which type of dormitory construction?

   A. **Ordinary and mixed (SM 16-4 and 16-6)**
   B. Noncombustible and mixed
   C. Ordinary
   D. Noncombustible

Operations

Module 17: Grain Elevator Simulation Exercise

Answer Key

1. "Reinforced concrete, multistory" describes which of the following structures associated with grain elevators?

   A. **Silos (SM 17-4)**
   B. Head house
   C. Offices

2. "Corrugated metal roof and siding" describes which of the following structures associated with grain elevators?

   A. Silos
   B. **Head house (SM 17-4)**
   C. Offices

3. Which of the following structures associated with grain elevators may be of ordinary construction?

   A. Silos
   B. Head house
   C. **Offices (SM 17-3)**

4. When water is used to extinguish a grain elevator fire, it should be applied _____.

   A. Rapidly
   B. **Gently and slowly (SM 17-6)**
   C. In fans from two sides

5. Which of the following statements is true?

   A. Because grain fires generate great heat, locating the seat of the fires is easy.
   B. In large, stubborn elevator fires, the elevator sometimes is sealed off and CO_2 is injected from the top.
   C. **Interior offensive attack is never recommended. (SM 17-6)**

Operations

Module 18: Penal Institution Exercise

Answer Key

1. Incident command considerations for a penal institution incident will evolve in a way similar to a(n) _____ incident.

   A. Dormitory
   B. **Hazardous materials (SM 18-4)**
   C. EMS
   D. Mass casualty

2. "Confinement involves indirect, intermittent supervision" describes _____.

   A. **First-generation confinement (SM 18-4)**
   B. Second-generation confinement
   C. Third-generation confinement

3. "Plexiglas™ separates guards from inmates" describes _____.

   A. First-generation confinement
   B. **Second-generation confinement (SM 18-4)**
   C. Third-generation confinement

4. "There are guards within the units" describes _____.

   A. First-generation confinement
   B. Second-generation confinement
   C. **Third-generation confinement (SM 18-4)**

5. Detention centers are often _____ structures of one to three stories.

   A. **Type I—fire restrictive (SM 18-3)**
   B. Type III—ordinary
   C. Type V—frame construction