CHAPTER 2: Size up

Chapter Overview

Size-up refers to the process of mentally assessing a situation and evaluating factors at an incident prior to determining actions or resources needed. The goal is to take a long and short view to identify anything that could influence the rescue, including environment, scene safety, location, condition of the subject, and whether the subject can assist in their own rescue.

A thorough size-up should be quick and efficient with ongoing reevaluations. The following are factors of a good size-up:

1. Scope, magnitude, and nature of the incident

2. Location, number, condition of subjects

3. Risk versus benefit (recovery or rescue)

4. Access to scene

5. Environmental factors

6. Available resources

7. Ability to make patient contact without endangering anyone involved

This list is not comprehensive, it may also include other factors.

Initial size-ups provide incoming resources with information to base a plan of action on. Size-ups are ongoing throughout the incident. Every rescue crew should perform their own size-up upon arrival to assess how they may help the scene.

This chapter focuses on what rescuers do once a call goes out. The initial actions taken may contribute to the success or failure of the mission as it progresses.

Objectives and Resources

**Knowledge Objectives**

After studying this chapter, you should be able to:

 Describe the process of performing a scene size-up at a rope rescue. (NFPA 1006: 5.1.2, 5.1.3, pp. 22–24)

 Explain the process of determining the scope of a rope rescue. (NFPA 1006: 5.1.2, pp. 22–23)

 Explain the considerations for gathering information about subjects at a rope rescue. (NFPA 1006: 5.1.2, pp. 23–24)

 Explain the considerations for determining what additional resources may be needed at an incident. (NFPA 1006: 5.1.2, pp. 25–27)

 Explain how scene size-up informs the creation of an incident action plan. (NFPA 1006: 5.1.2, p. 27)

 Describe the purpose and components of an incident action plan. (NFPA 1006: 5.1.2, p. 27)

 Identify rope rescue reference and resource materials. (NFPA 1006: 5.1.2, pp. 27–28)

 Describe how search parameters for a rope rescue are identified. (NFPA 1006: 5.1.2, pp. 28–29)

 Describe size-up information that must be communicated to command. (NFPA 1006: 5.1.2, p. 30)

**Skills Objectives**

After studying this chapter, you should be able to:

 Conduct a rope rescue incident scene size-up. (NFPA 1006: 5.1.2, pp. 22–24)

 Describe how to interview witnesses. (NFPA 1006: 5.1.2, pp. 24–25)

 Analyze reference and resource materials. (NFPA 1006: 5.1.2, pp. 27–28)

 Communicate information concisely and accurately during a rope rescue incident. (NFPA 1006: 5.1.2, p. 30)

Support Materials

 Dry-erase board and markers or chalkboard and chalk

 LCD projector, slide projector, overhead projector, and projection screen

 PowerPoint presentation or slides

 **Navigate for Students**

 **Advantage**

 Each printed textbook comes with an access code that unlocks several valuable teaching and learning assets including:

 **Navigate eBook**

 Online and offline accessibility ensures that the eBook is always available. Offline interactions are captured, cached, and uploaded the next time they are connected to the Internet.

 **Navigate for Instructors**

 **ACCESS LEVELS**—Differing levels of access meet the needs of traditional, hybrid, and distance learning courses.

 **LMS COMPATIBILITY**—A fully hosted and supported online learning solution. It is also available for deployment in third-party learning management solutions, such as Blackboard and Canvas.

 **ANALYTICS**—Dashboards for the instructor enables access to real-time, actionable data.

 **SUPPORT & TRAINING**—A Navigate Implementation Specialist will be your personal resource to answer questions, set-up your course, and maintain your customizations from semester to semester.

Reading and Preparation

Review all instructional materials, including *Rope Rescue,* Fifth Edition, Chapter 2, and all related presentation support materials.

Chapter Presentation Overview

Pre-lecture

I. You Are the Rescuer

Small-Group Activity/Discussion

Purpose

The purpose of this activity is to introduce students to concepts surrounding the understanding and management of water rescue incidents.

Instructor Directions

1. Direct students to read the “You Are the Rescuer” scenario found at the beginning of Chapter 2 (p. 22).

2. You may assign students to a partner or a group. Direct them to review the discussion questions at the end of the scenario and prepare a response to each question. Facilitate a class dialogue centered on the discussion questions.

3. You may also assign this as an activity and ask students to turn in their comments on a separate sheet of paper.

Lecture

I. Introduction

**A. Review the learning objectives**

**B. Size-up:**

1. Refers to mentally assessing a situation and evaluating factors to determine course of action and needed resources

2. Goal is to take a long and short view to identify anything that could influence the rescue, including:

a. Environmental conditions

b. Scene safety

c. Location of the subject

d. Whether or not the subject might be able to assist in the rescue

3. Performed quickly and efficiently, constantly reevaluated throughout the course of the rescue

4. A good size-up includes:

a. Scope, magnitude, and nature of the incident

b. Location, number, and condition of the subject

c. Risk versus benefit analysis

d. Access to scene

e. Environmental factors

f. Available/needed resources

g. Ability to make contact with the subject without endangering anyone involved

5. Should provide relevant information to incoming resources and leadership to plan the operation

6. More pertinent information allows command to create alternatives if needed

7. Size-up should be ongoing

8. Once any new resources arrive, a new size-up is performed to reevaluate the current operation

9. Actions taken during the size-up can contribute to the success or failure to the over mission as it progresses

II. Determine the Scope of the Rescue

A. The intent of the rescue needs to be made immediately, prior to the selection of resources.

B. *Scope* is known as the determination of what needs to be achieved and what work needs to be done to reach the desired outcome.

C. A clearly defined and communicated scope decides:

1. Team size and capability

2. Equipment required

3. Anticipated time of completion

4. Need for additional resources

D. Personnel deployed, equipment and techniques used, and procedures followed are driven by scope.

E. Scope of most rescues are driven by:

1. Removing the subject(s) from harm in a safe and efficient manor

2. Minimizing loss of life, personal injury, and property damage

3. Executing the rescue in a timely and efficient manor

F. The scope differs for all incidents.

G. The scope of each incoming unit becomes narrower than the previous unit.

H. The rescue leader must coordinate the segmented efforts and lead them to a successful conclusion.

III. Identify the Number of Subjects

A. Determining how many subjects need to be rescued or cared for is one of the first and most important factors for a rescue leader.

1. The initial number of subjects may not be obvious.

2. Ensure the full scene is considered when counting subjects.

B. When the number and severity of subjects outnumbers rescuers, it is known as a *mass-casualty incident*.

C. Regardless of the number of casualties, these standards should be followed:

1. Your own safety is first priority.

2. Safety of fellow rescuers is second concern.

3. Safety of the subject is third priority.

4. Safety of bystanders is fourth priority.

IV. Establish the Last Known Location of Subjects

A. Having a good, solid point of reference where the subject was last seen or known to be can expedite the search and rescue process

1. The last definitive point subject is known to be, with positive identification, is often known as the *last known point (LKP)*.

a. Sometimes this location is the last point a subject was seen at, so some agencies refer to it as the *point last seen (PLS)*.

2. Information may be derived from technology.

a. Cell phone location

i. May not be completely accurate depending on cell tower availability

ii. Requires cooperation with cell phone authorities as well

b. Subscription-based satellite technology

i. Integrates location information via a global satellite network

3. If subject is not located at the LKP, first task is finding them. This is the basis for the initial scope of the incident.

V. Identify and Interview Witness and Reporting Parties

A. *Reporting party*: the person who reported the need for rescue

1. May be the subject themselves or another party

2. If reporting party is not the subject, they may not be present at the scene.

B. Ensure the reporting party is isolated and interviewed, a top priority.

1. Others who may also have first-hand information must also be interviewed.

C. Isolation of the reporting party and other interviewees keeps them available and out of reach of the media.

1. Best practice to keep them separate from each other as well

2. Separation of interviewees and interview locations preserves the integrity of information.

D. Good interview candidates include:

1. Reporting party

2. Incident eyewitnesses

3. Family members

4. Coworkers/schoolmates

5. Healthcare or welfare workers

6. Friends of the subject

E. Reporting party interviews are unique.

1. May be especially stressed or more emotionally distraught

2. Information may be disjointed, and facts may not add up in the normal way.

3. Some reporting parties may intentionally distort information and may have an ulterior motive.

4. Good interview techniques are needed to create a successful outcome.

F. Reporting parties are encouraged to share whatever relative information they have.

G. Cognitive interview methods that have been shown to help improve information recall and analysis include the following:

1. Alternative narrative order

a. Used by law enforcement

b. Recency effect – suggests human mind recalls recent events better than older ones

c. Describe events from end to beginning

d. Can improve accuracy and recall specific details

2. Contextual restatement

a. Help stimulate accurate recall by asking questions that re-create context for the reporting party

b. What they were doing; how they felt; what sights, sounds, smells, emotions they experienced

3. Perspective

a. Asked to describe what happened from different perspectives

b. Thinking about how others viewed the scene may be able to offer insights that might not have occurred otherwise.

H. Forms may be used to gather information.

1. Help to retain information as well as keep the interview more structured and thorough

2. Good starting points are the subject, their habits and characteristics.

3. Next questions can lead the interviewee to recall specific details of the scene.

I. Useful information to gather includes:

1. Name of the subject

2. Age of the subject

3. Clothing the subject wore

4. Skills or familiarity of the subject relative to local area and activity

5. Time, place, and circumstances under which last seen

6. General state of physical and mental health

7. Specific information regarding known injuries or health concerns

8. Conditions or situations which incident occurred

9. Relevant conditions between time of occurrence and present

10. Response activity already performed or currently underway

J. This information gives rescuers a subject profile, allowing rescuers to understand where the subject may be or how they may act once found.

VI. Assessing Resource Needs

A. Resource needs are determined when information about the scope, subject, and situation are obtained.

B. Resources may include any combination of personnel and equipment, and will change over the course of the incident.

C. Preplanning

1. Determining what response capabilities to request during size-up by understanding the scope, frequency, and magnitude of potential incidents

2. The following list shows the relevant chapters within NFPA 1006 and NFPA 2500 where each discipline is addressed:

a. Tower rescue (NFPA 1006 Ch 4, NFPA 2500 Ch 23)

b. Rope rescue (NFPA 1006 Ch 5, NFPA 2500 Ch 5)

c. Structural collapse (NFPA 1006 Ch 6, NFPA 2500 Ch 6)

d. Confined space (NFPA 1006 Ch 7, NFPA 2500 Ch 7)

e. Vehicle rescue (NFPA 1006 Ch 8, NFPA 2500 Ch 8)

f. Heavy vehicle rescue (NFPA 1006 Ch 9, NFPA 2500 included in Ch 8)

g. Animal rescue (NFPA 1006 Ch 10, NFPA 2500 Ch 9)

h. Wilderness rescue (NFPA 1006 Ch 11, NFPA 2500 Ch 10)

i. Trench rescue (NFPA 1006 Ch 12, NFPA 2500 Ch 11)

j. Machinery rescue (NFPA 1006 Ch 13, NFPA 2500 Ch 12)

k. Cave rescue (NFPA 1006 Ch 14, NFPA 2500 Ch 13)

l. Mine and tunnel rescue (NFPA 1006 Ch 15, NFPA 2500 Ch 14)

m. Helicopter rescue (NFPA 1006 Ch 16, NFPA 2500 Ch 15)

n. Surface water rescue (NFPA 1006 Ch 17, NFPA 2500 Ch 16)

o. Swiftwater rescue (NFPA 1006 Ch 18, NFPA 2500 Ch 17)

p. Dive rescue (NFPA 1006 Ch 19, NFPA 2500 Ch 18)

q. Ice rescue (NFPA 1006 Ch 20, NFPA 2500 Ch 19)

r. Surf rescue (NFPA 1006 Ch 21, NFPA 2500 Ch 20)

s. Watercraft rescue (NFPA 1006 Ch 22, NFPA 2500 Ch 21)

t. Flood rescue (NFPA 1006 Ch 23, NFPA 2500 Ch 22)

3. Although this text focuses on rope rescue, there is a high likelihood that there will be an overlap in disciplines.

4. *Hazard identification* takes into account any hazard on the scene so command may request responders able to deal with those specific hazards.

5. Use of NFPA 1006 as well as NFPA 2500 will afford the AHJ documentation to develop rescue preparedness.

D. Identifying appropriate resources

1. A key to size-up is recognizing which type of responder is needed for a scene.

2. A baseline understanding of incidents and capabilities of responders is necessary.

3. Environmental considerations need to be assessed so the correct responders can be dispatched with rope rescuers. Environments often coupled with rope rescue incidents:

a. Buildings and structures

b. Structural collapse incidents

c. Wilderness and mountain

d. Communications or utility towers

e. Confined spaces

f. Trenches or excavations

g. Caves

h. Mines and tunnels

i. Lakes, rivers, and dams

j. Flood areas

E. LAST

1. A common approach to efficiently segment a response effort that encompasses several different disciplines

a. Locate

b. Access

c. Stabilize

d. Transport

2. Breaking down a scene into phases like this will allow command to handle the incident in a more controlled fashion.

VII. Obtain Information Required to Develop an Incident Action Plan

A. An *Incident Action Plan (IAP)* should be present at every rescue operation.

B. An IAP documents and tracks the strategies and management of an operation.

C. Should encompass search as well as rescue

D. Considered a “living document,” it evolves throughout the incident.

E. An IAP should include the following:

1. Operational goals and objectives

2. Record of the agencies and resources involved

3. Leadership roles and responsibilities

4. Objectives by *operational period* and assigned resources

5. Strategic and operational plans

6. Transfer of authority (over multiple periods or jurisdictions)

7. Demobilization plans

F. Developmental information should be taken from whatever resources are available.

1. Starting with incident size-up, reporting party information, existing pre-plans, the *incident command system (ICS)* of the AHJ, standard operating procedures, and leadership staff

2. Do not overlook or undermine the experience of other available personnel.

G. Most operations will be managed by a defined ICS using an IAP under the direction of the AHJ.

H. An ICS defines roles and responsibilities of personnel and standard operating procedures to be used during emergency operations.

I. Development and use of IAPs will be covered further in Ch 4, *Initiating a Response*.

VIII. Using Reference Materials

A. Study and consider existing knowledge, information, and resources both prior to and during an incident

B. Materials will fall into two categories:

1. Advanced study materials (preplanning)

a. Includes textbooks, regulatory documents, and industry manuals

2. Materials easily referenced during an incident

a. Includes field guides

b. Field guides can be made into checklists for easier use during rope rescue operations. Care should be taken to not drop field guides and checklists when working at height.

IX. Identify Search Parameters

A. If search is needed, the IC needs to determine where to search, and what method to use.

B. The sooner a search is initiated, the more successful the results.

C. The search sense of urgency should match the relative risk of the operation.

D. These factors may increase the urgency of search:

1. Age

a. Very young or very old

2. Medical condition

a. Those with a known illness or need medication

3. Weather

a. Hazardous weather is predicted.

4. Experience/skill

a. Inexperienced subject or one that may not be able to take care of themselves in the environment

5. Equipment

a. Ill-equipped subjects

E. Definition of the search area is ongoing.

1. Initial search area will consist of high-probability areas.

2. Search area will expand and contract upon receipt of more clues and information.

F. Lost person behavior

1. *Lost Person Behavior* by Robert Koester identifies 41 different types of persons who might become lost, along with approaches to search.

a. 41 is just a starting number for the differences in lost people.

2. Data to consider when developing a search plan:

a. Mental status

i. Depressed or suicidal, generally, do not travel far and are likely found at the interface between two types of terrain.

b. Age

i. Adults tend to stick to a trail, seek out highpoints to view surroundings, rarely backtrack.

ii. Children 15 and younger are a poor judge of time, distance and direction. Tend to look for something familiar

c. Activity

i. Hunters are often lost by darkness or when tracking or field dressing game. Often able to make shelter and self-extricate

ii. Gatherers are often lost from looking at the ground and not their surroundings. Often not prepared to spend the night. More often keep wandering

3. Interviewing the reporting party can greatly ease the search if the basics of lost person behavior is understood.

G. Time of day

1. The earlier a search is initiated, the more successful.

2. Rescuer safety must be considered.

a. People lost in backcountry often report at end of day, leading to a night search.

b. Consider risk to the subject, capabilities of responders, risk to the rescuer, and probability of success.

3. 50% of searches can be resolved within 3 hours, most within 2 miles of the last known place.

H. Initial goals

1. Containment

a. Intended to confine the movement of a lost subject in a close area search

b. Assumes subject will not cross over a trail, road, river, or similar

c. Establish patrol routes, set track traps, place lookouts at high points, and establish perimeter controls to reduce further wander

d. *String lines* are lines of string placed waist high where the subject may walk with arrows pointing toward a road or trail.

2. Attraction

a. Get the attention of the subject using noise and lights from the LKP or high-probability areas early on.

b. Common methods are horns, sirens, whistles, or voice.

c. Emergency lights, vehicle lights, flashlights, and headlamps can be used at night.

d. Be sure to pause and listen for the subject.

3. Hasty search

a. *Probability of area (POA)* should be priority.

i. An estimation of the likelihood that a subject is in a given area

b. May use actual route the subject may take

c. Generally performed with speed as priority

d. Should be used to search for relevant clues like scent, footprints, and discarded items

e. Make sure to not damage potential clues

I. Detailed search methods

1. May be employed if initial search efforts are not successful

2. Search areas are typically segmented into sub-areas, searched using refined methods.

3. *Probability of detection (POD)* refers to the likelihood the subject would be found in a search area.

a. May refer to the subject or clues

X. Relay Information

A. Using standardized formats to collect appropriate information ensures information continuity

B. Allow for clarification of information or for more details if needed

C. Report the following information upon initial size-up:

1. Incident location and access route

2. Number of subjects

3. Additional people involved

4. Suspected injuries

5. Current rescue efforts

6. Distances involved

7. Anticipated hazards

8. Reporting party and callback number

D. Who – What – When – Where – Why – How

1. Who

a. Who is impacted

b. The subject and number, age, gender, etc.

c. Who else is on scene with the subject

2. What

a. What happened

b. Mechanism of injury/nature of illness

c. Present situation

3. When

a. When did it occur

b. When was the call initiated

c. When did changes in subject condition occur

4. Where

a. Where is the incident

b. Where will rescuers access the subject

c. Evacuation route

5. Why

a. Why is the subject incapacitated

b. Why is help required

c. Why is the situation dangerous

6. How

a. How will the subject need to be removed

b. How can responders obtain more information

XII. Summary

 **Initial size-up sets the stage for a successful rescue.**

 **Ongoing size-up is a critical tool for ongoing success.**

 **The first unit arriving should take immediate responsibility for completing a preliminary size-up and assuming command of the incident.**

 **Determining the scope of the rescue is key in defining what the intended outcome of the operation will be and what resources will be required to complete the operation.**

 **Identifying the number of subjects will help determine to scope of the incident.**

 **Establishing the last known location of subjects may require interviewing the reporting party.**

 **Assessing resources needs begins with preplanning and includes identifying appropriate resources based on the needs of the community.**

 **Every response has the potential of needing to address all four phases of a rescue: Locate, Access, Stabilize, and Transport.**

 **The incident action plan should include:**

o **Operational goals and objectives**

o **Record of the agencies and resources involved**

o **Leadership roles and responsibilities**

o **Objectives by operational period and assigned resources**

o **Strategic and operational plans**

o **Transfer of authority (for multiple operational periods or jurisdictions)**

o **Demobilization plans**

 **Once the last known location is determined, the search perimeter may be determined.**

 **The initial goals of a search operation are:**

o **Containment**

o **Attracting**

o **Hasty search**

 **It is important to communicate key facts discovered during size-up to the command staff, including the typical Who–What–When–Where–Why–How group of questions.**

Post-lecture

I. After-Action Review

Individual/Small-Group Activity/Discussion

On Scene

This activity is designed to help the student understanding how to approach a fire investigation. This activity incorporates both critical thinking and the application of basic trench rescue knowledge.

Purpose

To allow students an opportunity to develop responses to critical thinking questions.

Instructor Directions

1. Direct students to read the “On Scene” questions located in the After-Action Review section at the end of Chapter 2 (p. 28).

2. Direct students to read and individually answer the discussion questions. Allow approximately 10 minutes for this part of the activity. Facilitate a class review and discussion of the answers, allowing students to correct responses as needed.

3. You may also assign these as individual activities and ask students to turn in their comments on a separate piece of paper.

Answers

1. You’ve been called to a park where a 7-year-old girl was reported to have gone for a walk with her elderly grandmother 1 hour ago. The girl is now about one-third of the way from the top of a 40-foot rocky outcrop, clinging to a shrub, shriek­ing. As you assess the scene, what key points are you going to be considering? What questions will you ask?

Key Points: Safety (my own, my teammates, the subject(s), bystanders); securing the scene; scope of the incident; initial response needed; secondary response and resources

Questions: Is the scene safe? What do I need to do to maintain my own safety and that of bystanders? What happened? Who is involved? How many subjects are there? Where are they? Are there any hazardous events potentially waiting to happen? What resources do I have available right now? What resources am I going to need?

2. How would you expect interviewing the reporting party for a rescue incident to differ from interview­ing for a search incident?

Interview for a rescue incident is necessarily rapid and focuses on immediate threats to life and safety; interview for a search incident will need to explore more esoteric topics that might help lead to finding the subject.

3.A group of kids who often congregate at a nearby railroad bridge report that one of their friends was despondent and threatened to jump from the bridge 90 minutes ago. He has not been seen or heard from since. Whom would you interview, and what questions would you ask, to initiate a search effort?

Who: Friends who reported the incident; family members; school counselors or other relevant care providers; other known friends

Questions: Name, age, description; time, place, and circumstances under which last seen. Has this happened before? If so, when and where did the person go? Is there a special spot on the bridge we should be looking at? What are the access points you (friends) “usually” use? Is the subject under the influence of any substance? Determine specific information regarding known health concerns.

4. Discuss what the mnemonic LAST means, and de­scribe how you would apply it to at least two dif­ferent incident types in your response area.

**L**ocate the subject – find them; **A**ccess – rescuers should reach the specific location of the subject ASAP; **S**tabilize – protect the subject so that no further harm occurs; **T**ransport – extricate and remove the subject from their circumstance. Specific application will vary by incident.

5.How specific does an incident action plan (preplan) need to be in order to be useful?

At least specific enough to enable the AHJ to identify appropriately trained and equipped responders, and to provide guidance for how to execute the rescue safely and mitigate related hazards.

II. Lesson Review

Discussion

Note: Facilitate the review of this lesson’s major topics using the review questions as direct questions or slides. Answers are found throughout this lesson plan.

1. What is a size-up? (Lecture I B)

2. What is the scope and what does it consist of? (Lecture II B,C,D)

3. What is a mass-casualty Incident? (Lecture III B)

4. What is the LKP, last known point and what is its definition? (Lecture IV A)

5. What is a reporting party and how are their interviews unique? (Lecture V A,E,F)

6. What is some useful information to collect about the subject? (Lecture V I)

7. What does LAST stand for? (Lecture VI E)

8. What is an Incident Action Plan and what should it include? (Lecture VII A-E)

9. What factors may increase the urgency of a search? (Lecture IX D)

10. What information should be reported upon initial size-up? (Lecture X C,D)

III. Assignments

Lecture

A. Advise students to review materials for a quiz (determine the date/time).

B. Direct students to read the next chapter in *Rope Rescue, Fifth Edition*, as listed in your syllabus (or reading assignment sheet) to prepare for the next class session.