



S-131 Unit 3: Lookouts, Communications, Escape Routes, and Safety Zones (LCES)

Summary:

LCES must be established and known to all firefighters before it is needed. Lecture, video and open discussion will be used to emphasize the importance of LCES for firefighter safety.

Incident Position Description (IPD) Alignment:

This unit aligns with the following FFT1 and ICT5 specific duties:

- Ensure Lookouts, Communications, Escape Routes, and Safety Zones (LCES) are established and known to all firefighters before they are needed. Refer to guidelines stated in the IRPG.
- Adjust actions based on changing information and evolving situation awareness. Develop and implement contingency plans. Communicate changing conditions to assigned resources and supervisor.

Unit Objectives:

Students will be able to:

- Demonstrate the ability to apply the principles of Lookouts, Communications, Escape Routes, and Safety Zones (LCES).

Unit at a Glance:

| Topics | Method | Duration |
|----------------------------|------------------------|---------------------------|
| Introduction | Presentation and Video | 20 Minutes |
| Lookouts | Presentation and Video | 20 Minutes |
| Communications | Presentation | 20 Minutes |
| Escape Routes | Presentation | 20 Minutes |
| Safety Zones | Presentation | 20 Minutes |
| LCES Case Study | Video | 50 Minutes |
| Total Unit Duration | | 2 Hours 30 Minutes |

Unit 3: Lookouts, Communications, Escape Routes, and Safety Zones (LCES)

Materials:

- *Incident Response Pocket Guide (IRPG)*, PMS 461, <https://www.nwcg.gov/publications/461>.
- Ability to display images and video on large screen. The videos in this unit require an active internet connection to play from within the PowerPoint presentation. If there will not be an internet connection at the point of course delivery, the video must be downloaded prior to class from <https://www.nwcg.gov/publications/training-courses/s-131/course-materials>.
- Student Reference 3-1, <https://www.nwcg.gov/publications/training-courses/s-131/course-materials>, “LCES” Original Document by Paul Gleason. This should be made available to students, either as a printed handout or digitally.
- White board or easel access for exercise.

Slide 1



 **S-131 Unit 3: LCES**
Lookouts, Communications,
Escape Routes, and Safety Zones

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 1

Slide 2

| Objective |
|--|
| <p>Students will be able to:</p> <ul style="list-style-type: none">• Demonstrate the ability to apply the principles of Lookouts, Communications, Escape Routes, and Safety Zones (LCES). |
| <small>S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 2</small> |

- Review unit objective.

Slide 3

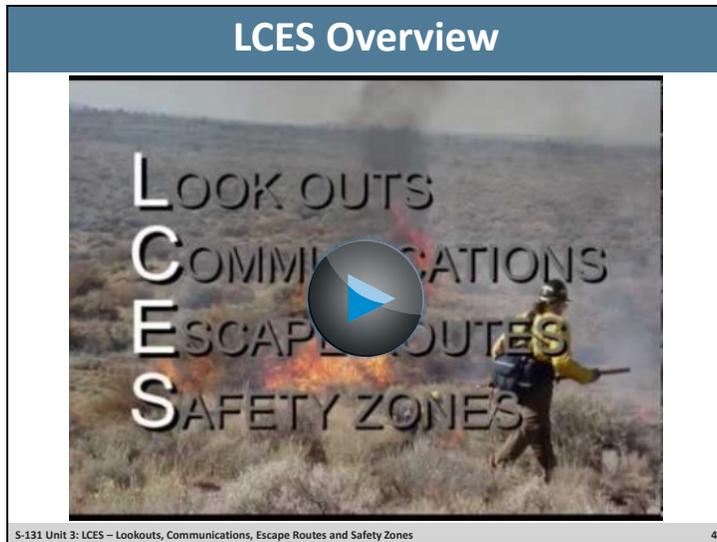
Introduction

A Brief History
"LCES"
Original Document
By
Paul Gleason
Former Zig Zag Hotshot Superintendent
June 1991

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 3

- Have the students review the original document by Paul Gleason on LCES, Student Reference 3-1, <https://www.nwcg.gov/publications/training-courses/s-131/course-materials>.
- Briefly discuss the history of LCES, the major points in the document, and the evolution of how LCES has become the safety standard for engagement throughout the wildland fire community.

Slide 4



Play Video

Title Is your LCES adequate?

Summary Interview describing the importance of LCES and how it relates to changing fire behavior.

Time (08:14)

Audio

Slide 5

Lookouts

Qualities of a Good Lookout

- Experienced, competent, and trusted.
- Understands objectives and leader's intent.
- Achieves a view of the fire scene.
- Keeps in mind the limits of their view.
- Accounts for everyone's location, including small groups and individuals.

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 5

- ❑ Have students refer to the section on lookouts in the *Incident Response Pocket Guide (IRPG)*, PMS 461, <https://www.nwcg.gov/publications/461>.
 - Individuals chosen for this assignment are typically experienced, competent, and trusted. They need to be alert, thinking clearly, and knowledgeable. They must be good communicators and have a good command of the radio system (frequency management).
 - Understands the objectives and leader's intent as they relate to the strategies and tactics.
 - Achieves a view of the fire scene. Lookouts know where Escape Routes and Safety Zones are in relation to the crew's location.
 - Keeps in mind the limits of their view and informs firefighters when they are moving out of that area.
 - Accounts for everyone's location, including small groups and individuals. The use of signal mirrors (headlamps at night) is encouraged.

Slide 6

Lookouts

Qualities of a Good Lookout

- **Actively maintains communications with everyone in their area.**
- **Monitors the fire, fire behavior, and weather and tracks weather trends.**
- **Stays in position until replaced with another lookout, the hazard is otherwise mitigated, you (the lookout) are ordered out by the supervisor, or if your safety is compromised.**

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 6

- Be able to recognize trigger points and report changing conditions when the situation becomes untenable (not able to be occupied).
- It is important that everyone counting on a lookout knows if there is any break in the lookout's service.

Slide 7

Lookouts

Qualities of a Good Lookout

- Anticipates and thinks ahead.
- Provides an overview of progress and the completeness of monitored communications.
- Provides communications link to the outside world.



Slide 8

Lookouts

Qualities of a Good Lookout

- Handle logistics for the crew for remote operations. Makes logistical preparations for self for extended shifts that have the possibility for no support.
- Establishes their own LCES plan and fit into the chain of command (e.g., where their communications link is).
- The lookout is not always an individual perched on an adjacent ridge, nor will the person looking out be able to see the entire scene.

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones

8

- A crew boss or IC may serve as a lookout by being heads up (as opposed to digging), and by staying mobile.

Slide 9

Lookouts

Lookout Tools

- Notebook
- Binoculars
- Weather kit
- Compass and GPS
- Flashlight or head lamp
- Flagging (various colors)
- Extra batteries
- Wristwatch
- Maps
- Signal mirror or strobe
- Radio
- Cell or satellite phone
- PPE
- Incident Action Plan

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 9

- ❑ Discuss the importance of the lookout's responsibilities and how everyone's safety is dependent on the lookout's actions or lack thereof.
 - The lookout position should not be taken lightly. The people in the field are relying on the lookout.
 - If the supervisor is relying on the lookout for critical decisions, it is better to err on the side of caution and make the call too early rather than too late.

Slide 10



Play Video

Title Lookouts, the 'L' in LCES

Summary Narrative of what a Lookout might be thinking about on a fire, and the characteristics of a good lookout.

Time (07:55)

Audio

Slide 11

Communications

Guidelines for Effective Communications

- Eliminate assumptions.
- Ask questions.
- Find out everything you need to know to stay aware of your situation.
- Relay updated information as soon as possible.
- Be available to communicate at all times.

Slide 12

Communications

Guidelines for Effective Communications

- Know all radio frequencies on fire and with other crews.
- Speak clearly and concisely—think before talking.
- Practice effective listening skills.
- Pay close attention to verbal and non-verbal communications.



Slide 13

Escape Routes

Preparation

- Make sure everyone knows their escape routes.
- The ideal escape route is the shortest path to the safety zone that is clear of obstructions.



S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 13

- ❑ Have students refer to the *Incident Response Pocket Guide (IRPG)*, PMS 461, <https://www.nwcg.gov/publications/461>, section on escape routes.

Slide 14

Escape Routes

Preparation

- **Consider the time required to travel the escape route based on the slowest person, fatigue, and environmental factors. Avoid uphill escape routes.**
- **Establish alternative escape routes.**
- **Scout the area. Consider fuels, weather, topography, fire behavior, and spotting potential when evaluating an escape route.**

Slide 15

Escape Routes

Preparation

- **Make routes known to adjoining forces and lookouts. Ensure they are marked for day or night use.**
- **Park vehicles to allow for ease of escape.**
- **Communicate, reevaluate, and reiterate.**
- **You may need to change escape routes as weather, fire location, or crew location changes.**

Slide 16

Escape Routes

Implementation



- When retreating, account for your assigned personnel.
- Notify the chain of command of your actions, location, and destination.
- Depending upon the severity of the situation, radio frequencies may need to be cleared.

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 16

Slide 17

Safety Zones

Factors to Consider When Selecting a Safety Zone

- Fuel type
- Terrain and slope
- Flame lengths
- Smoke
- Snags
- Accessibility
- Time
- Effects of anticipated winds



S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 17

- Have students refer to the *Incident Response Pocket Guide (IRPG)*, PMS 461, <https://www.nwcg.gov/publications/461>, section on safety zones.
- Have the students discuss the elements or factors to consider when selecting a safety zone (e.g., fuel type, terrain and slope, flame lengths, smoke, snags, accessibility, time, and effects of anticipated winds).

Slide 18

Safety Zone Guidelines

- Safety zones are not intended to be deployment zones.
- Safety zones will be identified and discussed before work begins.
- “Keep one foot in the black” or “Bring the black with you” is the first and most common safety practice.

Slide 19

Safety Zone Guidelines

- **When a blackened area is used as a safety zone, the crown must also be absent.**
- **Safety zones can be created by burning out light fuels, or irrigation; however, the time these actions require must be factored into the LCES formula.**

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones

19

If you are going to use the black as your safety zone, it must be cool enough to stand in, big enough to eliminate radiant and convective heat, and have no reburn potential. Be aware of falling trees that have burned, rolling rocks, and re-burnable brush.

Slide 20

Safety Zone Guidelines

- Firelines located to include open meadows will eliminate the need for some last-minute firing.



Slide 21

Safety Zone Guidelines

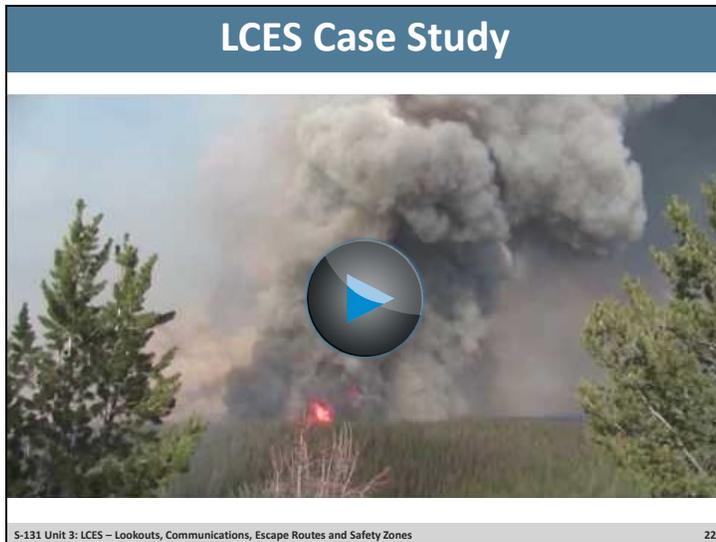
- **Take advantage of the aerial overview whenever possible.**
- **Help less-experienced people scrutinize safety zones. Give examples of good and poor safety zones.**
- **Each individual must be constantly engaged in the LCES process, evaluating and reevaluating as locations and situations change.**

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones

21

- Make sketches or mark maps in the aircraft.
- Consider the use of digital photography.

Slide 22



Show Salt Fire Case Study video and discuss it.

Play Video

Title Salt Fire Case Study

Summary First-hand accounts of the events that took place on the Salt Fire.

Time (29:24)

Audio

Slide 23

Review Objective

Students will be able to:

- **Demonstrate the ability to apply the principles of Lookouts, Communications, Escape Routes, and Safety Zones (LCES).**

S-131 Unit 3: LCES – Lookouts, Communications, Escape Routes and Safety Zones 23

- Review unit objective.