

Firefighter Type 1 S-131



NFES 002790

Instructor Guide
SEPTEMBER 2016



CERTIFICATION STATEMENT

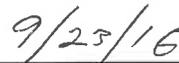
on behalf of the

NATIONAL WILDFIRE COORDINATING GROUP

The following material attains the instructional design standards prescribed for training products developed and coordinated by the National Wildfire Coordinating Group. The training material is certified for interagency use and is known as:

Firefighter Type 1, S-131


Operations and Training Committee Chair


Date

NWCG OPERATIONS AND TRAINING COMMITTEE POSITION ON COURSE PRESENTATION AND MATERIALS

The recommended hours listed in the FMCG are developed by subject matter experts based on their estimation of the time required to present all material needed to adequately teach the unit and course objectives. The hours listed may vary slightly due to factors such as number of students, types and complexity of course activities, and the addition of local materials.

NWCG does not approve of course delivery varying greatly from the recommended course hours. Instructors and students are cautioned that in order to be recognized as an NWCG-certified course, certain guidelines must be followed:

- Lead instructors are encouraged to enhance course materials to reflect the conditions, resources, and policies of the local unit and area as long as the objectives of the course and each unit are not compromised.
- Exercises can be modified to reflect local fuel types, resources, and conditions at the location where the student will likely fill incident assignments. The objectives and intent of the exercises must remain intact.
- Test questions may be added that reflect any local information that may have been added to the course. However, to ensure the accurate testing of course and unit objectives, test questions in the certified course materials should not be deleted.
- Test grades, used to determine successful completion of the course, shall be based only on the questions presented in the certified course materials.

If lead instructors feel that any course materials are inaccurate, information should be submitted either by accessing the online feedback form at <http://training.nwcg.gov/> (select the “NWCG EVAL” button in the upper right corner) or by sending an email to the NWCG Training Branch at BLM_FA_NWCG_training@blm.gov. Materials submitted will be evaluated and, where and when appropriate, incorporated into the appropriate courses.

COURSE LENGTH FOR NWCG COURSES

Recommended course hours and the “NWCG Position on Course Presentation and Materials” above will be adhered to by the course instructors (see below for exception for criteria-based courses).

- Recommended unit times represent the allotted time to teach the unit and complete the exercises, simulations, and tests.
- Recommended course hours are provided to help the students and the course coordinator plan for travel, room reservations, and facilities usage. The recommended course hours represent the time estimated to present the NWCG-provided materials including time for breaks, lunch periods, to set up for field exercises or simulations, etc.
- Actual times for both the unit(s) and the course may vary based on number of students, types and complexity of course activities, and the addition of local instructional materials.

If the course is criteria based, e.g., L-380, and has been developed using NWCG course criteria, minimum course hour requirements have been established and must be adhered to by the course developer and course instructors.

Course hours for all NWCG courses can be found in the Field Manager’s Course Guide at <https://www.nwcg.gov/publications/901-1>. If the hours are a minimum versus recommended, they will be stated as such.

Firefighter Type 1

S-131

Instructor Guide

September 2016

NFES 002790

Sponsored for National Wildfire Coordinating Group (NWCG) publication by the NWCG Training Committee. Comments regarding the content of this publication should be directed to the NWCG Training Branch at BLM_FA_NWCG_Training@blm.gov.

For additional copies of this publication, go to Publications at <https://www.nwcg.gov>.

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COURSE INSTRUCTIONS

This section contains instructions and information essential to the course coordinator and instructors in making an effective presentation. Cadre members must read this section and be thoroughly familiar with course procedures and material before presentation.

I. INTRODUCTION

The Firefighter Type 1, S-131, course requires 12 hours for presentation. This course is designed to meet the training needs of a Firefighter Type 1 (FFT1) and an Incident Commander Type 5 (ICT5) on an incident as outlined in the National Incident Management System Wildland Fire Qualification System Guide (PMS 310-1) and the position task book.

The National Incident Management System Wildland Fire Qualification System Guide (PMS 310-1), developed under the sponsorship of the National Wildfire Coordinating Group (NWCG), is designed to establish minimum requirements for training, experience, physical fitness level, and currency standards for wildland fire positions, which all participating agencies have agreed to meet for national mobilization.

To ensure that the most up-to-date material is being presented, instructors are encouraged to refer to the NWCG Training and Qualifications website. This website contains current updates for all NWCG courses (go to <http://training.nwcg.gov/>).

This S-131 course has been developed as an instructor-led training (ILT). The course is designed to be interactive in nature. It contains several exercises designed to facilitate group and class discussion. The instructor cadre must be familiar with the course instructions and the exercises. Modifications made to address local concerns must be discussed and agreed to by the instructor cadre before the course is presented to the students. Upon completion of the ILT, students must then take and pass a final assessment to receive credit for the course.

II. COURSE OBJECTIVES

Course objectives are stated in broad terms that define what students will be able to accomplish after completing the course.

At the successful completion of this course, students will be able to:

1. Identify position responsibilities and demonstrate the ability to apply principles of Operational Leadership found in the Incident Response Pocket Guide (IRPG; PMS 461).
2. Describe how to incorporate and maintain open lines of communication with appropriate personnel, and identify documentation responsibilities.
3. Identify Look Up, Down and Around indicators and demonstrate the ability to apply the components of Lookouts, Communications, Escape Routes, and Safety Zones (LCES) as described in the IRPG.
4. Demonstrate the ability to apply tactical decision making procedures.

III. MINIMUM INSTRUCTOR QUALIFICATIONS

Refer to the Field Manager's Course Guide (PMS 901-1) for instructor prerequisites specific to this course (online at <http://training.nwcg.gov/>).

IV. INSTRUCTOR PREPARATION AND COURSE COORDINATION

A. General Information

The Course Coordinator's Guide (PMS 907) contains general information for presentation of NWCG courses. The course coordinator and instructors should be thoroughly familiar with this guide (online at <http://training.nwcg.gov/>).

B. Course Agenda

A sample agenda is located in Appendix A. Revise the agenda as appropriate. The agenda can be inserted into the Student Workbook before the beginning of class. Consider removing timeframes from the agenda that is given to students.

V. COURSE MATERIALS

The Course Materials Thumb drive contains the Instructor Guide, Student Workbook, and Appendixes in bookmarked files in portable document format (PDF).

As of the course publication date, the forms referenced in these course materials are current. It is the responsibility of the instructor cadre to keep the course current by using up-to-date forms and other publications. Some handouts will have to be printed from the Internet before the start of the course.

A. Instructor Guide

The Instructor Guide is designed as a teaching aid to assist instructors in presenting the course.

Each unit begins with a Unit Overview that outlines the lesson's approximate delivery time, objectives, learning strategy, instructional methods, required materials (instructional aids), and evaluation criteria.

The Unit Presentation follows the Unit Overview, and contains the lesson plan for each unit, shown in a two-column format:

- The Outline column contains the lesson content that supports the learning objectives. The column also contains notes to the instructor (directions for conducting an exercise, questions to ask students, etc.), which are in **bold boxes**.
- The Aids & Cues column lists references (slide numbers, handouts, publications, etc.) that remind instructors to display or refer to specific materials.

B. Appendixes

The following appendixes are on the Course Materials Thumb Drive:

- Appendix A – Course Ordering and Support Information

This appendix tells you how to order required components of the course and what additional support materials are needed for course presentation.

- Appendix B – PowerPoint Presentations

Test the equipment before the start of class to ensure compatibility with software.

Refer to the READ ME file, located on the Thumb Drive, which provides information on:

- Minimum System Requirements to Successfully Run Microsoft PowerPoint 2010 Presentations
 - Editing the Original PowerPoint 2010 Files
 - Troubleshooting
 - Microsoft PowerPoint Viewer 2010
 - References on Creating PowerPoint Slides

- Appendix C – Student Assessment

This appendix contains the Final Examination and Answer Key. Duplicate enough copies of the final examination for every student to have one copy.

- Appendix D – Course Evaluation Forms

The Student Training Course Evaluation Form allows the students an opportunity to comment on the course and the instructors for the purpose of improving future training sessions. Distribute the form at the beginning or end of the course.

The Training Course Evaluation Form is an opportunity for the course coordinator and instructors to comment on course design. These comments are used by NWCG Training to identify potential problems with courses and as a resource during the course revision process.

C. Student Workbook

In most cases, the Student Workbook contains the same course information as the Instructor Guide but without the instructor notes, aids and cues, and exercise answers. Student Workbooks should be ordered before the beginning of the course, one for each student.

VI. STUDENT TARGET GROUP

The target group should consist of individuals qualified as a Firefighter Type 2 (FFT2) desiring to become qualified as a Firefighter Type 1 (FFT1) and an Incident Commander Type 5 (ICT5).

VII. COURSE PREREQUISITES

Students must have successfully completed S-130, Firefighter Training. Refer to the Field Manager's Course Guide (PMS 901-1) for current course prerequisites.

VIII. COURSE SELECTION LETTER

Send a course selection letter to students who are selected to attend the course. This letter congratulates selected students and should explain class times, dates, and location. Refer to the Course Coordinator's Guide (PMS 907) for more information on selection letters. A sample selection letter is located in Appendix A.

IX. CADRE MEETINGS

Cadre meetings are an opportunity for instructors to meet, review the material, and discuss concerns with the course coordinator or lead instructor. The meetings are critical for instructors who do not have previous experience with the course. A cadre meeting checklist is located in the Course Coordinator's Guide (PMS 907).

A cadre meeting before each day's course presentation is recommended because of the interrelationship of the unit material (changing instructional materials in one unit may impact a later unit).

After each day's presentation, hold a cadre meeting to discuss concerns and progress. At the end of the course, conduct a final cadre meeting to evaluate instructor performance and suggest modifications for future courses.

X. RECOMMENDED CLASS SIZE

The recommended class size is 25 to 30 students. The recommended student-to-instructor ratio is 5:1. Cadre members should be present for all instructional sessions. A minimum of three instructors should present this course; however, more instructors are required if a field exercise is incorporated. This is to enable strong mentorship by the cadre to the students.

XI. SPACE AND CLASSROOM REQUIREMENTS

The characteristics of the classroom and supportive facilities have a significant impact on the learning environment. The classroom should be chosen and viewed well in advance of the presentation.

The following characteristics should be considered when choosing a location and classroom:

- The classroom should be free from outside interruptions and interferences.
- Provide adequate room and flexibility for student work groups and equipment, including supportive facilities such as break areas, restrooms, etc.
- The classroom should have controlled lighting, good acoustics, and good ventilation.
- Provide adequate access to copy and printing services.
- Provide adequate desk space and power outlets for laptop computers (one power strip for each table).
- Be sure a computer with projector and screen is available to show electronic presentations.
- If printing in the classroom, a laptop and driver for the printer will be needed.
- An area for sand tables and demonstrations appropriate for field exercises may be needed (cadre's discretion).

Refer to the Course Coordinator's Guide (PMS 907) for more information.

XII. STUDENT ASSESSMENT AND CERTIFICATION

Students must obtain a score of 70% or higher on the student assessment evaluation method chosen to receive a certificate of completion for the course.

A. Exercises and Quizzes

Exercises and quizzes are designed to demonstrate students' ability to meet lesson objectives. They are not graded but should be discussed upon completion by the entire class.

B. Final Examination

The final examination consists of 20 questions and should be completed within 1 hour. The final examination and answer key are in Appendix C.

PREFACE

Firefighter Type 1, S-131, is a required training course in the National Interagency Incident Management System: Wildland Fire Qualification System Guide (PMS 310-1).

This course was developed by an interagency group of subject matter experts with direction and guidance from the National Wildfire Coordinating Group (NWCG) Training Branch. The primary participants in this development effort were:

USDI BUREAU OF LAND MANAGEMENT

Al Crouch, Vale District, Vale, Oregon

USDA FOREST SERVICE

Brett Rogers, Powell Ranger District, Kooskia, Idaho

NWCG TRAINING BRANCH

The NWCG appreciates the efforts of these personnel and all those who have contributed to the development of this training product.

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The following appendixes are located on the Course Materials Thumb Drive:

- Appendix A – Course Ordering and Support Information
- Appendix B – PowerPoint Presentations
- Appendix C – Student Assessment
- Appendix D – Course Evaluation Forms

UNIT OVERVIEW

Course Firefighter Type 1, S-131

Unit 0 – Introduction

Time 30 minutes

Objectives

Throughout this unit, the lead instructor will:

1. Introduce the course coordinator, instructors, and students.
2. Discuss course logistics.
3. Provide a course overview.
4. Discuss course expectations.
5. Identify course reference materials.
6. Discuss position responsibilities.

Strategy

This unit is an introduction to the course. It involves student and cadre interaction through introductions and a group exercise.

Instructional Method(s)

- Informal lecture
- Classroom discussion
- Interactive group discussion

Instructional Aids

- Computer with projector, screen, and presentation software
- Sign-in sheet
- Flip charts and markers
- Position task book
- Designing Tactical Decision Games/Sand Table Exercises workbook available online at www.fireleadership.gov.
- NIMS: Wildland Fire Qualification System Guide (PMS 310-1)

Exercise(s)

- Student expectations for the course.

Evaluation Method(s)

- Review and address questions for student clarification.

Outline

- I. Welcome and Introductions
- II. Course Logistics
- III. Course Overview
- IV. Course Expectations
- V. Position Descriptions

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide

SW – Student Workbook

HO – Handout

IR – Instructor Reference

SR – Student Reference

Slide – PowerPoint

UNIT PRESENTATION

Course Firefighter Type 1, S-131

Unit 0 – Introduction

OUTLINE	AIDS & CUES
<p>Present NWCG Mission Statement slide.</p> <p>Present course and unit title slide.</p> <p>Present unit objectives.</p>	<p>Slide 0-1</p> <p>Slide 0-2</p>
<p>I. WELCOME AND INTRODUCTIONS</p>	<p>Slide 0-3</p>
<p>Introduce course coordinator, instructors, and students.</p> <p>Use any method desired for introductions.</p> <p>Have students provide the following information:</p> <ul style="list-style-type: none">• Name and job title• Agency and home unit• Incident Command System (ICS) qualifications• Experience relative to the position as either a trainee or a trainer/coach, both positive and negative.	

OUTLINE	AIDS & CUES
<p>II. COURSE LOGISTICS</p> <p>Discuss the following as appropriate:</p> <ul style="list-style-type: none"> • Course agenda • Sign-in sheet <p>Circulate the class registration form or a sign-in sheet for students to sign.</p> <ul style="list-style-type: none"> • Breaks • Facility locations (restrooms, vending machines, drinking fountains, smoking areas, evacuation policy, etc.) • Message location • Cell phone policy • Local information (restaurants, local map, transportation) 	<p>Slide 0-4</p>
<p>III. COURSE OVERVIEW</p> <p>This course is designed to meet the training needs of a Firefighter Type 1 (FFT1) and an Incident Commander Type 5 (ICT5) as outlined in the Wildland Fire Qualification System Guide (PMS 310-1) and the position task book developed for the positions.</p>	<p>Slide 0-5</p>

OUTLINE	AIDS & CUES
<p>A. Course Objectives</p> <p>At the successful completion of this course, students will be able to:</p> <ol style="list-style-type: none"> 1. Identify position responsibilities, and demonstrate the ability to apply principles of Operational Leadership found in the Incident Response Pocket Guide (IRPG), PMS 461). 2. Describe how to incorporate and maintain open lines of communication with appropriate personnel, and identify documentation responsibilities. 3. Identify Look Up, Down and Around indicators, and demonstrate the ability to apply the components of Lookouts, Communications, Escape Routes, and Safety Zones (LCES) as described in the IRPG. 4. Demonstrate the ability to apply tactical decision-making procedures. 	<p>Slide 0-6</p> <p>Slide 0-7</p>
<p>B. Instructional Methods</p> <ol style="list-style-type: none"> 1. Facilitation and short lectures with PowerPoint presentations 2. Discussion 3. Exercises 	

OUTLINE	AIDS & CUES
<p>C. Evaluating Student Performance</p> <p>To successfully complete the course, students must:</p> <ul style="list-style-type: none"> • Participate in all classroom discussions, exercises, and scenarios. • Complete all quizzes. • Obtain a score of 70% or higher on the final exam to receive a certificate of completion for the course. <p>D. Student Training Course Evaluation Form</p> <p>Students are given the opportunity to comment on the course, the units, and the quality of instruction at the end of the course.</p>	
<p>E. Transition From FFT2 to FFT1</p>	<p>Slide 0-8</p>
<div style="border: 2px solid black; padding: 10px; width: fit-content; margin: 0 auto;"> <p>Emphasize that transitioning from a follower to a leader will require additional skills to perform the job.</p> <p>Instructors should discuss their experiences transitioning from FFT2 to FFT1.</p> </div>	
<p>The FFT1 is the first level of fireline leadership, which requires:</p> <ul style="list-style-type: none"> • Sharpening communication skills 	

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Making sound tactical decisions • Coordinating with other resources • Being a leader <p>F. Course Reference Materials</p> <p>Below is a list of materials that are referenced throughout this course:</p> <ul style="list-style-type: none"> • Wildland Fire Incident Management Field Guide (PMS 210) with NWCG Fireline Handbook, Appendix B: Fire Behavior (PMS 410-2) • Incident Response Pocket Guide (PMS 461) • Wildland Fire Qualification System Guide (PMS 310-1) • Interagency Standards for Fire and Fire Aviation Operations (Red Book) 	

OUTLINE	AIDS & CUES
<p>IV. COURSE EXPECTATIONS</p> <p>A. Student Expectations</p> <p>EXERCISE: Student Expectations for the Course</p> <p><u>Purpose:</u> Students develop a list of their expectations for the course.</p> <p><u>Time:</u> 10 minutes</p> <p><u>Format:</u> Students work in small groups of three to five students.</p> <p><u>Materials Needed:</u> Flip charts and markers</p> <p><u>Instructions:</u></p> <ol style="list-style-type: none"> 1. Instruct groups to write their responses to the following question on a flip chart: <ul style="list-style-type: none"> • What do you expect to learn from this course? 2. Have each group present their expectations to the class. 3. Answer any questions. 4. Post lists around the room, and refer to them throughout the course to ensure students' expectations are being met. <p><u>End of Exercise.</u></p>	<p>Slide 0-9</p>

OUTLINE	AIDS & CUES
<p>B. Instructor Expectations</p> <p>Students will:</p> <ul style="list-style-type: none"> • Have an interest in becoming a Firefighter Type 1 (FFT1) and/or an Incident Commander Type 5 (ICT5). • Have completed their pre-course work. • Exhibit mutual cooperation with the group. • Participate actively in all of the training exercises presented in the course. • Return to class at stated times. • Have all their questions answered. 	
<p>V. POSITION DESCRIPTIONS</p> <p>A. Wildland Fire Incident Management Field Guide Position Descriptions</p> <p>The Wildland Fire Incident Management Field Guide (PMS 210) contains information about positions in the ICS and position descriptions for the FFT1 and ICT5. The FFT1 and ICT5 will be covered in detail throughout this course.</p> <ul style="list-style-type: none"> • The FFT1 and ICT5 are supervised by a Single Resource Boss. 	<p>Slide 0-10</p>

OUTLINE	AIDS & CUES
<p data-bbox="298 285 873 321">B. Position Task Book Description</p> <p data-bbox="393 369 1016 531">The Position Task Book (PTB) identifies the common tasks for all unit leaders and additional specific tasks for the FFT1 and ICT5.</p> <div data-bbox="207 583 1052 680" style="border: 2px solid black; padding: 5px;"> <p data-bbox="220 594 1006 669">Have students compare the FFT1 and ICT5 tasks in the PMS 210 with the tasks in the PTB.</p> </div> <p data-bbox="393 730 1024 812">The PTB is the primary tool for observing and evaluating performance.</p> <p data-bbox="393 858 1052 1020">In the current performance-based system, trainees must complete the tasking in the PTB to become qualified as an FFT1 and/or ICT5.</p> <p data-bbox="393 1071 1036 1152">The PTB can only be initiated by the home unit, not at this course.</p> <div data-bbox="207 1203 1052 1341" style="border: 2px solid black; padding: 5px;"> <p data-bbox="220 1213 1032 1331">Ask students if they have any questions concerning the Wildland Fire Incident Management Field Guide or the PTB.</p> </div> <div data-bbox="207 1392 1052 1533" style="border: 2px solid black; padding: 5px;"> <p data-bbox="220 1402 630 1438">Review course objectives.</p> <p data-bbox="220 1488 669 1524">Answer students' questions.</p> </div>	<p data-bbox="1078 1392 1235 1467">Slide 0-11 Slide 0-12</p>

UNIT OVERVIEW

Course Firefighter Type 1, S-131

Unit 1 – Position Responsibilities and Operational Leadership

Time 1 hour

Objectives

1. Identify position responsibilities of Firefighter Type 1 (FFT1) and Incident Commander Type 5 (ICT5).
2. Demonstrate the ability to apply operational leadership principles.
3. Demonstrate the ability to locate and apply standard wildland fire operating procedures found in the Incident Response Pocket Guide (IRPG) and other identified fireline references.

Strategy

This unit will introduce position responsibilities and leadership principles for FFT1/ICT5. The unit is designed with lectures, exercises and instructor lead discussion. Instructors may want to show examples of kit contents.

Instructional Method(s)

- Informal lecture and discussion with PowerPoint
- Video
- Exercises

Instructional Aids

- Computer with projector, screen, and presentation software
- Flip charts and markers
- Incident Response Pocket Guide, PMS 461
- Leading in the Wildland Fire Service, PMS 494-2
- Wildland Fire Incident Management Field Guide, PMS 210

Exercise(s)

- Exercise 1
- Exercise 2
- Exercise 3

Evaluation Method(s)

- Review and address questions for student clarification.
- Objectives will be tested in classroom Final Examination (written).

Outline

- I. Position Responsibilities
- II. Operational Leadership Principles
- III. Fireline Reference Materials
- IV. Exercises

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

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SW – Student Workbook
HO – Handout

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SR – Student Reference
Slide – PowerPoint

UNIT PRESENTATION

Course Firefighter Type 1, S-131

Unit 1 – Position Responsibilities and Operational Leadership

OUTLINE	AIDS & CUES
Present unit title slide.	Slide 1-1
Present unit objectives.	Slide 1-2
I. POSITION RESPONSIBILITIES	Slide 1-3
A. Preparation and Capabilities	
1. Obtain complete information from dispatch when receiving the assignment.	
• Incident name and order number	
• Incident phone number	
• Reporting time	
• Reporting location (drop point)	
• Transportation arrangements and travel routes	
• Contact procedures during travel (telephone and radio)	
2. Bring adequate personal gear within established weight requirements.	

OUTLINE	AIDS & CUES
<p>3. Bring FFT1/ICT5 Kit. Kit should contain enough critical information and materials to allow you to operate for the first 48 hours without need for support.</p> <ul style="list-style-type: none"> • IRPG and other guides • Incident Organizer • ICS Forms • Programmable radio • Cell phone • Writing materials • Compass and GPS • Belt weather kit • Flagging • Batteries • Camera <div style="border: 2px solid black; padding: 5px; margin: 10px 0;"> <p>Tell students to consider their reporting location (e.g., out of their area or region, or whether they will have to drive or fly to the location) and what they may need for the type of mission or incident.</p> </div> <p>4. Follow safety procedures for transporting personnel and equipment by:</p> <ul style="list-style-type: none"> • Foot • Vehicle (e.g., engines or crew buggies) • Boat • Helicopter • Fixed-wing aircraft <p>5. Arrive at the incident and check in.</p>	

Discuss potential tasks that the FFT1 may be assigned or asked to accomplish upon check-in (e.g., obtaining logistical supplies for the mission at hand, getting vehicles repaired, and getting manifest ready for flying).

Discuss the similarities between check-in and demobilization (e.g., turning in documentation, returning equipment, finalizing timesheets, and vehicle repairs).

6. Inspect crew members and their personal protective equipment (PPE), and ensure personnel and equipment meet agency requirements, serviceability, conditions of hire, and supervisor’s instructions.
 - Check crew members’ qualifications, and ensure the crew members meet agency qualification requirements for tasks and assignments.
 - Notify supervisor of any corrective action needed.

Slide 1-4

Discuss the procedure to follow if a crew member is missing a PPE item, red card, etc.

7. Obtain initial briefing from the supervisor.
 - Task or assignment (instructions may be written and/or oral).
 - Current incident situation.

OUTLINE	AIDS & CUES
<p>8. Correctly prepare the radio for operation on the incident, and properly use the portable or mobile multichannel radio.</p> <ul style="list-style-type: none"> • Obtain a communications plan. • Program the radio for incident use, and successfully complete the radio check. • Exercise proper radio discipline and etiquette. • Use clear text. • Protect the radio from damage. • Describe agency procedures for emergency notification (emergency traffic). 	<p>Slide 1-5</p>
<p>Have the students describe some limitations of radio communications (e.g., band width, repeater coverage, and incompatible systems).</p>	
<p>9. Accurately navigate to an assigned destination.</p> <ul style="list-style-type: none"> • Properly use maps, compass, Global Positioning System (GPS), or other tools. 	

OUTLINE	AIDS & CUES
<p>10. Apply the principles of the Incident Command System (ICS).</p> <ul style="list-style-type: none"> • Follow chain of command. • Use appropriate ICS terminology. <p>B. Common Responsibilities of an FFT1 and/or ICT5</p> <p>1. Provide leadership for members of your crew.</p> <ul style="list-style-type: none"> • Obtain and understand priorities, and determine work objectives. • Delegate tasks to employees, and hold them accountable for their actions. • Ensure the supervisor's work objectives and performance standards are met. • Evaluate your crew members' performances. • Provide praise or discipline to crew members, as warranted. 	<p>Slide 1-6</p>
<div style="border: 2px solid black; padding: 5px;"> <p>Ask students the importance of having a broad experience base with various fire suppression tools and equipment, skills, and techniques when assigning and leading daily tasks.</p> </div>	

Discuss how the FFT1 and/or ICT5 would assess the capabilities and limitations of their assigned personnel.

2. Provide for the safety and welfare of assigned personnel.
 - Recognize, mitigate, and communicate potentially hazardous situations during tactical operations.
 - Maintain accountability of assigned personnel, and monitor their status.
 - Provide for care of crew members, and notify the supervisor in the event of sickness, injury, or accident.

Discuss agency policy and safety procedures appropriate to conditions (e.g., work-to-rest, smoke exposure, paperwork requirements for injuries, heat-related illnesses, and personnel issues).

3. Serve as a lookout.

Have the students briefly discuss who would make a good lookout. Lookout discussion is continued in Unit 3.

OUTLINE	AIDS & CUES
<p>II. OPERATIONAL LEADERSHIP PRINCIPLES</p> <p>A. Wildland Fire Leadership Values and Principles</p> <p>1. Exhibit principles of duty.</p> <ul style="list-style-type: none"> • Be proficient in your job, both technically and as a leader. • Make sound and timely decisions. • Ensure tasks are understood, supervised, and accomplished. • Develop your subordinates for the future. <p>2. Exhibit principles of respect.</p> <ul style="list-style-type: none"> • Know your subordinates and look out for their well-being. • Keep your subordinates informed. • Build the team. • Employ your subordinates in accordance with their capabilities. 	<p>Slide 1-7</p>

OUTLINE	AIDS & CUES
<p>3. Exhibit principles of integrity.</p> <ul style="list-style-type: none"> • Know yourself and seek improvement. • Seek responsibility and accept responsibility for your actions. • Set the example. <p>B. Basic Traits of an Effective Leader</p> <p>1. Exhibits a command presence.</p>	
<div style="border: 2px solid black; padding: 5px;"> <p>Read definitions of “command climate” and “command presence” in the PMS 494-2, and discuss.</p> </div>	
<p>2. Establishes and maintains open and effective communications with assigned resources.</p> <p>3. Develops and fosters crew cohesiveness.</p> <ul style="list-style-type: none"> • Sets expectations and maintains accountability. • Seeks commitment and input. • Focuses on the team result. <p>4. Develops the ability to make good decisions.</p>	<p>Slide 1-8</p>

OUTLINE	AIDS & CUES
<p data-bbox="298 283 623 317">C. Leader's Intent</p> <p data-bbox="393 369 1045 575">All leaders of firefighters have the responsibility to provide complete briefings and ensure that their subordinates have a clear understanding of their intent for the assignment:</p> <ul data-bbox="393 625 1045 856" style="list-style-type: none"><li data-bbox="393 625 878 659">• Task = What is to be done<li data-bbox="393 699 948 732">• Purpose = Why it is to be done<li data-bbox="393 772 1045 856">• End state = How it should look when done <p data-bbox="220 911 1024 1075">In the absence of direct supervision, clear leader's intent gives fireline personnel the flexibility to adapt to changing situations and successfully meet the objective(s).</p>	<p data-bbox="1081 283 1219 317">Slide 1-9</p>
<p data-bbox="220 1142 906 1222">Show video, "Leading in the Wildland Fire Service."</p>	<p data-bbox="1081 1136 1235 1169">Slide 1-10</p>

OUTLINE	AIDS & CUES
<p data-bbox="203 283 906 319">III. FIRELINE REFERENCE MATERIALS</p> <div data-bbox="207 369 1052 510" style="border: 2px solid black; padding: 5px;"><p data-bbox="219 380 943 499">Discuss the importance of the IRPG and the PMS 210 and how you have used them on the fireline.</p></div> <p data-bbox="300 562 878 598">A. Incident Response Pocket Guide</p> <div data-bbox="207 648 1052 747" style="border: 2px solid black; padding: 5px;"><p data-bbox="219 659 1008 737">Stress that the IRPG is one of the most important reference materials available.</p></div> <ol data-bbox="397 795 1040 1346" style="list-style-type: none"><li data-bbox="397 795 1040 1087">1. Purpose<p data-bbox="488 884 1040 1087">Serves as a field reference guide that is comprised of checklists and other information that are considered to be standard operating procedures (SOPs) for wildland fire incidents.</p><li data-bbox="397 1136 1040 1346">2. Features<ol data-bbox="488 1224 1040 1346" style="list-style-type: none"><li data-bbox="488 1224 1040 1346">a. Priority information is located on the cover pages of the IRPG. <div data-bbox="207 1396 1052 1579" style="border: 2px solid black; padding: 5px;"><p data-bbox="219 1407 984 1568">Briefly discuss with students the information on the cover pages of the IRPG (sizeup report, briefing checklist, standard firefighting orders, and watch out situations).</p></div> <ol data-bbox="488 1627 1040 1705" style="list-style-type: none"><li data-bbox="488 1627 1040 1705">b. The size of the IRPG is intended to fit into a pocket.	<p data-bbox="1079 283 1230 319">Slide 1-11</p>

OUTLINE	AIDS & CUES
<p>3. Sections</p> <p>Sections are color-coded for easy reference.</p> <div style="border: 2px solid black; padding: 5px; margin: 10px 0;"> <p>Refer students to the IRPG’s table of contents, which identifies the various sections in the IRPG. Walk the class through each chapter, and apply the information to the FFT1 and/or ICT5 positions.</p> <p>OR</p> <p>Have students break into small groups, and ask the groups to make presentations regarding applicability of an assigned section.</p> </div> <p>B. Other Reference Material</p> <ul style="list-style-type: none"> • Wildland Fire Incident Management Field Guide (PMS 210) • Leading in the Wildland Fire Service (PMS 494-2) 	
<p>IV. EXERCISES</p> <div style="border: 2px solid black; padding: 5px; margin: 10px 0;"> <p>The purpose of the following exercises is to orient students to the contents of the IRPG. However, additional information may also be located in the references listed in the Instructional Aids section of this unit. It is important for students to understand that the IRPG is not an all-encompassing document and that other informational sources exist. Students can work in small groups, or the instructor can have a general class discussion.</p> </div>	<p>Slide 1-12</p> <p>Slide 1-13</p>

All instructors must research and be familiar with the answers to the exercises in order to respond to student solutions. The exercises are provided in the student workbook (SW), with ample room for student responses.

Through the following hands-on exercises, you will gain familiarity with fireline reference tools, which will help you perform fireline duties safely and efficiently.

A. Exercise 1

Your crew reaches a point where you must begin building fireline downhill on the steepest terrain in the area. Briefly identify the specific reference tool items you would use to address this situation.

Slide 1-14

Student should refer to the IRPG. Review and reinforce the procedures.

B. Exercise 2

After you have analyzed your downhill line assignment, you believe it is unsafe to proceed. What are some considerations to properly refuse this risk?

Slide 1-15

Students should refer to the “How to Properly Refuse Risk” section in the IRPG.

OUTLINE	AIDS & CUES
<p>C. Exercise 3</p> <p>During your supervisory briefing, you are told that potential risks exist on your new assignment. What tool will you use and what actions will you take in order to properly manage the risks that have been identified?</p> <p>Student should refer to the “Risk Management Process” in the IRPG.</p> <p>Stress to students the importance of personalizing their fireline reference tools and updating them, as necessary. The more familiar they become with their tools, the more safely and efficiently they will be able to perform their fireline duties.</p>	<p>Slide 1-16</p>
<p>Review unit objectives.</p>	<p>Slide 1-17</p>

UNIT OVERVIEW

Course Firefighter Type 1, S-131

Unit 2 – Communication

Time 1 hour

Objectives

1. Identify the communication and documentation responsibilities of a Firefighter Type 1 (FFT1) and Incident Commander Type 5 (ICT5).
2. Demonstrate the ability to give and receive a briefing following the Briefing Checklist found in the Incident Response Pocket Guide (IRPG).

Strategy

Instructors will emphasize the importance of meaningful communication through lecture and discussion. The exercise will give students a chance to test their skills at presenting and receiving a briefing.

Instructional Method(s)

- Informal lecture and discussion with PowerPoint
- Video
- Exercise

Instructional Aids

- Incident Response Pocket Guide, PMS 461
- Computer with projector, screen, and presentation software
- Flip charts and markers

Exercise(s)

- Briefing exercise

Evaluation Method(s)

- Review and address questions for student clarification.
- Objectives will be tested in classroom Final Examination (written).

Outline

- I. Why is Good Communication Important?
- II. What is Effective Communication?
- III. Communication
- IV. Documentation
- V. Briefing Exercise

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide

SW – Student Workbook

HO – Handout

IR – Instructor Reference

SR – Student Reference

Slide – PowerPoint

UNIT PRESENTATION

Course Firefighter Type 1, S-131

Unit 2 – Communication

OUTLINE	AIDS & CUES
<p>Present unit title slide.</p> <p>Present unit objectives.</p>	Slide 2-1
<p>I. WHY IS GOOD COMMUNICATION IMPORTANT?</p> <p>Results of many fatalities and near-miss reviews on emergency incidents indicate poor or lack of communication was a major contributing factor.</p>	Slide 2-2
<p>Acquire a recent fatality or entrapment report and discuss how communication was a factor. A possible source would be the Lessons Learned website at http://wildfirelessons.net.</p> <p>As a firefighter, it is your responsibility to understand the importance of establishing and maintaining effective fireline communications. Communication is vital to implementing the Risk Management Process.</p>	Slide 2-3
<p>Briefly present the elements of the risk management process and discuss how vital communication is to using the process.</p> <p>The quality of communication will directly affect the success of completing an assignment in a safe and effective manner.</p>	

OUTLINE	AIDS & CUES
<p>II. WHAT IS EFFECTIVE COMMUNICATION?</p> <p>Effective communication is the transfer of information in terms that are understood by all parties.</p> <p>Discuss effective communication. Ask students to describe behaviors exhibited by senders and receivers that indicate effective communication is occurring.</p> <p>Effective communication occurs when both parties are engaged as senders and receivers. Indicators could include body language, paraphrasing, asking questions, using checklists, etc.</p> <p>Ask students how reference materials could be used as tools to enhance communication (e.g., IRPG Briefing Checklist, Helicopter Passenger Briefing and PPE checklist, Sizeup Report, and Medical Incident Report).</p>	<p>Slide 2-4</p>
<p>III. COMMUNICATION</p> <p>A. Five Communication Responsibilities</p> <p>Play the Five Communication Responsibilities video.</p> <p>Walk students through each of the five elements and discuss what tools are available that could be used to apply the five responsibilities.</p>	<p>Slide 2-5</p>

OUTLINE	AIDS & CUES
<p>Tell students that these responsibilities should be considered standard communication procedures, which they will use throughout their careers.</p> <ol style="list-style-type: none"> 1. Brief others (Briefing Checklist). 2. Debrief your actions (After Action Review). 3. Communicate hazards to others (Look Up, Down and Around; Tactical Watch Outs). 4. Acknowledge messages and understand intent (Risk Management Process). 5. Ask if you don't know. 	<p>Slide 2-6</p>
<p>Emphasize that good communication is created when information flows easily from top to bottom and back up.</p> <ol style="list-style-type: none"> B. Types of Communication <ol style="list-style-type: none"> 1. Oral communication <p>The most common forms of oral communication used during an incident are face-to-face, radios, and cell phones.</p> 	<p>Slide 2-7</p>

OUTLINE	AIDS & CUES
<p>a. Face-to-face communication</p> <ul style="list-style-type: none"> • Perhaps the most effective and preferred method of communication. • Logistical considerations often make this impractical. <div style="border: 2px solid black; padding: 5px; margin: 10px 0;"> <p>Stress that face-to-face communication provides the best opportunities to implement the five communication responsibilities.</p> </div> <p>b. Radio communication</p> <p>One of the most efficient and practical methods used to communicate on emergency incidents.</p> <div style="border: 2px solid black; padding: 5px; margin: 10px 0;"> <p>Stress how radio communication is practical but is also prone to unclear and misunderstood messages.</p> <p>Discuss how radio operating procedures could be enhanced to address the five communication responsibilities.</p> <p>Example: Someone sends a tactical message over the radio, and the receiver's reply is "copy." This doesn't exactly leave the sender with the confidence that the receiver fully understands.</p> <p>Discuss how messages could be acknowledged better by reading back or paraphrasing the message.</p> </div>	<p>Slide 2-8</p>

OUTLINE	AIDS & CUES
<p>b. Flagging</p> <ul style="list-style-type: none"> • A simple way of transferring information. • Enhances recall of information that had been previously discussed. <div style="border: 2px solid black; padding: 5px; margin-top: 10px;"> <p>Ask students what experience they have had with flagging on fireline assignments. Give personal accounts of using flagging to communicate on the fireline.</p> </div>	<p>Slide 2-11</p>
<p>c. Mirrors</p> <ul style="list-style-type: none"> • Can be used to locate individuals or signal aircraft. <div style="border: 2px solid black; padding: 5px; margin-top: 10px;"> <p>Discuss the option of using alternative methods of signaling if a signal mirror is not available (e.g., marker panels, colored smoke canisters, flares, flags, and signs).</p> </div>	<p>Slide 2-12</p>
<p>d. Body language</p> <ul style="list-style-type: none"> • Can be used to determine if an individual exhibits fatigue, understands the task, understands intent, etc. 	<p>Slide 2-13</p>

OUTLINE	AIDS & CUES
<p>Emphasize that some research indicates the largest percentage of all communication is nonverbal.</p> <p>Discuss how people demonstrate active communication through body language.</p> <p>OR</p> <p>Ask students to give examples of positive and negative body language.</p> <p>Elaborate as necessary concerning body language.</p>	
<p>3. Written communication</p> <ul style="list-style-type: none"> • Unit Log (ICS-214) and General Message (ICS-213) forms • Incident organizer • Other 	Slide 2-14
<p>IV. DOCUMENTATION</p> <p>A. Importance of Documentation and Records</p>	Slide 2-15
<p>Ask the students to determine why the following statements are important.</p> <ul style="list-style-type: none"> • The importance of documenting cannot be underestimated. Records help recall events and important information regarding the incident when the memory fails. 	

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Documentation provides relief forces with incident activities to date. <p>B. Types of Documentation</p> <p>1. Written</p> <ul style="list-style-type: none"> • Unit Log (ICS-214) • General Message (ICS-213) • Incident Briefing (ICS-201) • Pocket notebook (DI-5A pad, Ideas pad, etc.) • Agency-specific forms 	<p>Slide 2-16</p> <p>Slide 2-17</p>
<div style="border: 2px solid black; padding: 5px;"> <p>Solicit responses from the class in terms of what type of agency forms they have been required to use.</p> <p>Stress to students that agencies have different form completion requirements such as time reporting, claims, accidents, etc.</p> </div>	
<p>2. Electronic</p> <ul style="list-style-type: none"> • Electronic devices (e.g., camera, GPS, voice recorder, and computer) <div style="border: 2px solid black; padding: 5px;"> <p>Advise students that all forms may not be available or appropriate for use; however, the FFT1 and ICT5 need to use whatever form or tool is available to document a situation. Transfer can be made later to the appropriate medium.</p> </div>	<p>Slide 2-18</p>

OUTLINE	AIDS & CUES
<p data-bbox="298 283 836 319">C. What should be documented?</p> <p data-bbox="393 369 1019 533">Any event that you think is significant enough to remember should be written down. Think of documentation as another tool to aid your memory.</p> <div data-bbox="207 583 1052 810" style="border: 2px solid black; padding: 5px;"> <p data-bbox="220 594 1019 669">Ask students why documentation may be useful in the situations listed below.</p> <p data-bbox="220 720 1008 798">Discuss each of the following items while students refer to them in their Student Workbook.</p> <ul data-bbox="393 856 1039 1877" style="list-style-type: none"> <li data-bbox="393 856 846 894">• Change in fire behavior <li data-bbox="393 945 813 982">• Weather observations <li data-bbox="393 1033 954 1108">• Inappropriate behavior (human resource issues) <li data-bbox="393 1159 987 1197">• Change in assignment or location <li data-bbox="393 1247 813 1285">• Injuries and accidents <li data-bbox="393 1335 1036 1373">• Adjacent resources and call numbers <li data-bbox="393 1423 1019 1499">• Time of day when any of the above occurs <li data-bbox="393 1549 634 1587">• Spot fires <li data-bbox="393 1638 1019 1713">• Deficiencies in individual and crew performance <li data-bbox="393 1764 889 1801">• Additional training needed <li data-bbox="393 1852 964 1890">• Resources onscene upon arrival </div>	<p data-bbox="1081 283 1235 319">Slide 2-19</p>

OUTLINE	AIDS & CUES
<ul style="list-style-type: none">• Cutting fences for access into a fire• Property modifications during structure protection or damage or loss• Investigation of a point of origin or fire cause• Involvement with search and rescue, vehicle accidents, or law enforcement• Assignments, instructions, directions, etc.• Personnel time	

OUTLINE	AIDS & CUES
<p>V. BRIEFING EXERCISE</p> <p>ADMINISTER EXERCISE: Briefing</p> <p><u>Purpose:</u> The briefing exercise is designed to bring the concepts of this unit together by having the student either give and/or receive a briefing.</p> <p>The emphasis is on the value of applying the IRPG briefing format, documentation habits, and the five communication responsibilities.</p> <p><u>Time:</u> 20 minutes</p> <p><u>Format:</u> The students should be assembled in small groups of four to five. Two students from each group need to be identified for giving briefings.</p> <p><u>Materials Needed:</u> Show the video of a sample briefing, and discuss.</p> <p><u>Exercise Instructions:</u> Have the two students giving the briefing read the scenario. Do not allow the other students to read the scenario.</p> <p>One of the students is allowed to use the briefing checklist and any notes for delivery of his or her briefing. The other student must rely on memory.</p> <p>All students in the group receiving the briefing should follow along using the briefing checklist, and apply the five communication responsibilities.</p>	<p>Slide 2-20</p>

OUTLINE	AIDS & CUES
<p><u>SCENARIO:</u> You are one of two squad bosses on a 20-person crew, and you work directly for the crew boss. It is July 30, and at 1330, your crew has arrived at the Goat Creek fire. The local fire officer, Bud Garland, is the Type 3 Incident Commander. Aside from Bud, your crew is the only resource currently on the fire. The following observations are made by the crew boss after sizing up the fire:</p> <p><u>Fire Size:</u> 4 acres</p> <p><u>Fuel Type:</u> Pinyon/juniper with sage and grass understory.</p> <p><u>Temperature:</u> 94 °F</p> <p><u>Relative Humidity:</u> 22%</p> <p><u>Wind Speed/Direction:</u> Southwest, but direction variable and frequently shifting; average speed 7 mph gusting up to 15 mph with frequent changes in speed.</p> <p><u>Fire Behavior:</u> Active fire front with a defined head that shifts direction with the wind.</p> <p><u>Flame Lengths:</u> 4 feet in grass/sage with intermittent torching to 10 feet plus in pinyon/juniper.</p> <p><u>Rate of Spread:</u> Approximately 20–25 chains per hour.</p> <p><u>Topography:</u> Rolling, gentle slopes of 10–20 percent.</p>	<p>Slide 2-21</p>

OUTLINE

AIDS & CUES

The IC and the crew boss agree to split the crew anchoring off at the road side using direct attack. Additional resources have been ordered including four Type 3 engines and one air tanker. The crew boss designates you as having the right flank and the other squad boss taking the left flank with his crew. Because of the intense situation, your crew boss must leave the anchor point location. As he is leaving, he reemphasizes: “One foot in the black, monitor the air-to-ground frequency on 170.000, and to stay on tactical channel (3) 168.200.”

Exercise Ends.

After the exercise, discuss the value of using a standardized briefing checklist for information exchange.

Review unit objectives.

Slide 2-22

UNIT OVERVIEW

Course Firefighter Type 1, S-131

Unit 3 – Lookouts, Communications, Escape Routes, and Safety Zones

Time 2.5 hour

Objective

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

Strategy

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

Instructional Method(s)

- Informal lecture and discussion with PowerPoint
- Video

Instructional Aids

- Computer with projector, screen, and presentation software
- Flip charts and markers
- Incident Response Pocket Guide, PMS 461

Exercise(s)

- None

Evaluation Method(s)

- Review and address questions for student clarification.
- Objective will be tested in classroom Final Examination (written).

Outline

- I. Introduction
- II. Lookouts
- III. Communications
- IV. Escape Routes
- V. Safety Zones

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide

SW – Student Workbook

HO – Handout

IR – Instructor Reference

SR – Student Reference

Slide – PowerPoint

UNIT PRESENTATION

Course Firefighter Type 1, S-131

Unit 3 – Lookouts, Communications, Escape Routes, and Safety Zones

OUTLINE	AIDS & CUES
Present unit title slide. Present unit objective.	Slide 3-1 Slide 3-2
I. INTRODUCTION A. A Brief History of LCES	Slide 3-3
Have the students read the original document by Paul Gleason on LCES (refer to SR in SW). 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.	IR/SR 3-1 SW. p. 3.9
B. Overview of LCES	Slide 3-4
Show video, “Is Your LCES Adequate,” and discuss.	Slide 3-4

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Monitors the fire, fire behavior, and weather and tracks weather trends. Is able to recognize trigger points and report changing conditions when the situation becomes untenable (not able to be occupied). • Stays in position until replaced with another lookout, or the hazard is otherwise mitigated, you (the lookout) are ordered out by the supervisor or if your safety is compromised. It is important that everyone counting on a lookout knows if there is any break in the lookout's service. • Anticipates and thinks ahead, and provides an overview on progress and the completeness of monitored communications. • Provides communications link to the outside world. • May be asked to 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 knows how they fit into the chain of command, i.e., where their communications link is. 	<p>Slide 3-7</p> <p>Slide 3-8</p>

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

B. Lookout Tools

- Notebook
- Binoculars
- Weather kit
- Compass and GPS
- Flashlight or head lamp
- Flagging (various colors)
- Extra batteries
- Map(s)
- Signal mirror or other signaling devices
- Radio(s)
- Cellular or satellite phone
- Personal Protective Equipment (PPE)
- Incident Action Plan (IAP)
- Wristwatch

Slide 3-9

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.

OUTLINE	AIDS & CUES
<p>Show Lookout video, The “L” in LCES.</p>	Slide 3-10
<p>III. COMMUNICATIONS</p>	
<p>Have students refer to the IRPG section on communications.</p>	
<p>A. Guidelines for Effective Communications</p> <ul style="list-style-type: none"> • Eliminate assumptions. • Ask questions. • Find out everything you need to know. • Relay updated information as soon as possible, ask questions, and stay aware of your situation. • Stay in close proximity to communications with your crew. 	Slide 3-11
<ul style="list-style-type: none"> • 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 3-12

OUTLINE	AIDS & CUES
<p data-bbox="201 283 591 317">IV. ESCAPE ROUTES</p> <div data-bbox="207 369 1052 470" style="border: 2px solid black; padding: 5px; margin: 10px 0;"> <p data-bbox="219 380 1019 457">Have students refer to the IRPG section on escape routes.</p> </div> <p data-bbox="298 518 570 552">A. Preparation</p> <ul data-bbox="396 604 1049 1791" style="list-style-type: none"> <li data-bbox="396 604 1049 682">• Make sure everyone knows his or her escape routes. <li data-bbox="396 730 1049 850">• The ideal escape route is the shortest path to the safety zone that is clear of obstructions. <li data-bbox="396 898 1049 1066">• Consider the time required to travel the escape route based on the slowest person, fatigue, and environmental factors. Avoid uphill escape routes. <li data-bbox="396 1115 1008 1148">• Establish alternative escape routes. <li data-bbox="396 1197 1029 1365">• Scout the area. Consider fuels, weather, topography, fire behavior and spotting potential when evaluating an escape route. <li data-bbox="396 1413 1024 1533">• Make routes known to adjoining forces and lookouts, marked for day or night. <li data-bbox="396 1581 987 1659">• Park vehicles to allow for ease of escape. <li data-bbox="396 1707 943 1785">• Communicate, reevaluate, and reiterate. 	<p data-bbox="1081 495 1235 529">Slide 3-13</p> <p data-bbox="1081 892 1235 926">Slide 3-14</p> <p data-bbox="1081 1404 1235 1438">Slide 3-15</p>

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • You may need to change escape routes as weather, fire location, or crew location changes. <p>B. Implementation</p> <ul style="list-style-type: none"> • When retreating, account for your assigned personnel. • Notify chain of command of your actions, location, and destination. • Depending upon the severity of the situation, radio frequencies may need to be cleared. 	Slide 3-16
<p>V. SAFETY ZONES</p>	
<div style="border: 2px solid black; padding: 5px;"> <p>Have students refer to the IRPG section on safety zones.</p> </div>	
<p>A. Factors to Consider When Selecting a Safety Zone</p>	Slide 3-17
<div style="border: 2px solid black; padding: 5px;"> <p>Have the students discuss the elements or factors to consider when selecting a safety zone (e.g., fuel type, terrain and slope, flame lengths and smoke, snags, accessibility, and time).</p> </div>	
<p>B. Safety Zone Guidelines</p> <ul style="list-style-type: none"> • Safety zones are not intended to be deployment zones. The use of a fire shelter should not be necessary in a safety zone. 	Slide 3-18

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Safety zones will be identified and discussed before work begins. New safety zones must be scouted and announced as people move into new areas. • “Keep one foot in the black” or “Bring the black with you” is the first and most common safety practice. • When a blackened area is used as a safety zone, the crown must also be absent. 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 reburnable brush. • 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. 	<p>Slide 3-19</p>
<ul style="list-style-type: none"> • Firelines located to include open meadows will eliminate the need for some last-minute firing. 	<p>Slide 3-20</p>
<ul style="list-style-type: none"> • Take advantage of the aerial overview whenever possible. Make sketches or mark maps in the aircraft. Consider the use of digital photography. 	<p>Slide 3-21</p>

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • 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. 	
<div style="border: 2px solid black; padding: 2px;">Show 2011 Salt Fire video and discuss.</div>	Slide 3-22
<div style="border: 2px solid black; padding: 2px;">Review unit objective.</div>	Slide 3-23

"LCES"

Original Document

By

Paul Gleason

Former Zig Zag Hotshot Superintendent

June, 1991

LCES stands for lookout(s), communication(s), escape routes and safety zone(s). These are the same items stressed in the FIRE ORDERS and "Watchout" Situations. I prefer to look at them from a "systems" point of view, that is, as being interconnected and dependent on each other. It is not only important to evaluate each one of these items individually but also together they must be evaluated as a system. For example, the best safety zone is of no value if your escape route does not offer you timely access when needed.

A key concept - the LCES system is identified to each firefighter prior to when it must be used. **The nature of wildland fire suppression dictates continuously evaluating and, when necessary, re-establishing LCES as time and fire growth progress.** I want to take a minute and briefly review each component and its interconnection with the others.

Lookout(s) or scouts (roving lookouts) need to be in a position where both the objective hazard and the firefighter (s) can be seen. Lookouts must be trained to observe the wildland fire environment and to recognize and anticipate wildland fire behavior changes. Each situation determines the number of lookouts that are needed. Because of terrain, cover and fire size one lookout is normally not sufficient. The whole idea is when the objective hazard becomes a danger the lookout relays the information to the firefighter so they can reposition to the safety zone. **Actually, each firefighter has the authority to warn others when they notice an objective hazard which becomes a threat to safety.**

Communications(s) is the vehicle which delivers the message to the firefighters, alerting of the approaching hazard. As is stated in current training, communications must be prompt and clear. Radios are limited and at some point the warning is delivered by word of mouth. Although more difficult, it is important to maintain promptness and clearness when communication is by word of mouth.

Incident intelligence (regarding wildland fire environment, fire behavior and suppression operations) both to and from Incident Management (i.e. Command & General Staff) is of utmost importance. But I don't view this type of communication a normal component of the LCES system. Entrapment occurs on a fairly site-specific level. Incident intelligence is really used to alert of hazards (e.g.. "Watchout" situations) or to select strategic operations. LCES is primarily a Division function: responsibility should be here.

Escape Routes are the path the firefighter takes from their current locations, exposed to the danger, to an area free from danger. Notice that escape routes is used instead of escape route(s)

Unlike the other components, there always must be more than one escape route available to the firefighter. Battlement Creek 1976 is a good example of why another route is needed between the firefighter's location and a safety zone.

Escape routes are probably the most elusive component of LCES. Their effectiveness changes continuously. As the firefighter works along the fire perimeter, fatigue and spatial separation increases the time required to reach the safety zone. The most common escape route (or part of an escape route) is the fireline. On indirect or parallel fireline, situations become compounded. Unless safety zones have been identified ahead, as well as behind, firefighters retreat may not be possible.

Safety Zone(s) are locations where the threatened firefighter may find refuge from the danger. Unfortunately shelter deployment sites have been incorrectly called safety zones. Safety zones should be conceptualized and planned as a location where no shelter is needed. This does not intend for the firefighter to hesitate to deploy their shelter if needed, just if a shelter is deployed the location is not a tree safety zone. **Fireline intensity and safety zone topographic location determine safety zone effectiveness.**

Again, a key concept - the LCES system is identified prior to when it must be used. That is lookouts must be posted with communications to each firefighter, and a minimum of two escape routes form the firefighter's work location to a safety zone (not a shelter deployment site) every time the firefighter is working around an objective hazard.

Safety and tactics should not be considered as separate entities. As with any task safety and technique necessarily should be integrated. The LCES system should be automatic in any tactical operation where an objective hazard is or could be present.

LCES is just a re-focusing on the essential elements of the FIRE ORDERS. The systems view stresses the importance of the components working together. The LCES system is a result of analyzing fatalities and near misses for over 20 years of active fireline suppression duties. I believe that all firefighters should be given an interconnecting view of Lookout(s), Communications(s), Escape routes and Safety zone(s).

UNIT OVERVIEW

Course Firefighter Type 1, S-131

Unit 4 – Look Up, Down and Around

Time 3 hours

Objective

- Identify Look Up, Down and Around indicators.

Strategy

The instructor introduces the topic and then plays the video narration. The instructor can pause the narration at any time to highlight specific points or add additional information. At the end of the narration, the instructor facilitates a class discussion by reviewing indicators, asking questions, and sharing stories.

Instructional Method(s)

- Informal lecture and discussion
- Narrated video presentations
- Exercises

Instructional Aids

- Computer with projector, screen, and presentation software
- Flip charts and markers
- Incident Response Pocket Guide, PMS 461

Exercise(s)

- Fire Behavior Exercise
- Eastern Great Basin Exercise
- Smokejumper Exercise

Evaluation Method(s)

- Review and address questions for student clarification.

Outline

- I. Fuel Characteristics
- II. Fuel Moisture
- III. Fuel Temperature
- IV. Terrain
- V. Wind
- VI. Atmospheric Instability
- VII. Fire Behavior

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide	IR – Instructor Reference
SW – Student Workbook	SR – Student Reference
HO – Handout	Slide – PowerPoint

UNIT PRESENTATION

Course Firefighter Type 1, S-131

Unit 4 – Look Up, Down and Around

OUTLINE	AIDS & CUES
Present unit title slide.	Slide 4-1
Present unit objective.	Slide 4-2
I. FUEL CHARACTERISTICS	
Show Fuel Characteristics video and discuss.	Slide 4-3
This section addresses five indicators of fuel characteristics.	
• Fuel characteristic indicators determine the potential for fire intensity and rate of spread.	Slide 4-4
• Over time, fuel characteristics change very slowly; however, they can change quickly over a distance as the fire moves into new fuels.	
A. Indicators	Slide 4-5
Look for these five indicators in burning fuels and in fuels adjacent to the fire.	

OUTLINE	AIDS & CUES
<p>1. Continuous fine fuels</p> <p>a. Critical indicator</p> <p>It is associated with one of the major “Common Denominators of Fire Behavior on Tragedy Fires” listed in the IRPG.</p> <p>b. Definition</p> <p>Fast-drying, dead or live fuels that are < 1/4 inch in diameter and have a timelag of 1 hour or less.</p> <p>c. Impact on fire behavior</p> <ul style="list-style-type: none"> • Fuels ignite readily and are consumed rapidly by fire. • Increase the potential for rapid rate of spread. • Primary carrier of fire. <p>2. Heavy loading of dead and down</p> <p>a. Definition</p> <p>Large load of dead material, 3-inch or larger wood, that is on the forest floor.</p>	

OUTLINE	AIDS & CUES
<p>b. Impact on fire behavior</p> <ul style="list-style-type: none"> • Increases potential for intense burning conditions. • Is consumed more slowly and for a longer duration than continuous fine fuels. <p>c. Look for this indicator in:</p> <ul style="list-style-type: none"> • Older, mature stands of trees • Bug-killed trees • Hurricane blowdown • Thinned or logged areas <p>3. Ladder fuels</p> <p>a. Impact on fire behavior</p> <ul style="list-style-type: none"> • Provides potential for surface fires to move into the crowns. • High-intensity surface fires can move into the crowns with limited ladder fuels. 	

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> <li data-bbox="488 285 959 321">b. Examples of ladder fuels <ul style="list-style-type: none"> <li data-bbox="586 369 997 447">• Conifer reproduction and brush. <li data-bbox="586 499 1040 577">• Tree branches that hang close to the ground. <li data-bbox="586 625 1016 703">• Lichens and moss that grow in conifer trees. <li data-bbox="394 751 964 787">4. Tight crown spacing (< 20 feet) <ul style="list-style-type: none"> <li data-bbox="488 840 938 875">a. Impact on fire behavior <ul style="list-style-type: none"> <li data-bbox="586 924 1029 1085">• Once a fire gets into tightly spaced crowns, the fire will move from crown to crown. <li data-bbox="586 1138 1040 1341">• If there are high winds or steep slopes, a crown fire can move through more widely spaced vegetation. <li data-bbox="488 1392 1016 1470">b. Important in both timber and brush fuel types. 	

OUTLINE	AIDS & CUES
<p>5. Special conditions</p> <p>Pay attention to:</p> <p>a. <u>Firebrand sources</u> are any sources of heat capable of igniting wildland fuels.</p> <p>Always assess firebrand sources because:</p> <ul style="list-style-type: none"> • Fuel type characteristics and availability may change due to local or unique conditions. • Identifying firebrand sources helps anticipate severity of spotting problems. <p>b. <u>Snags</u> are drier and usually ready for ignition.</p> <p>c. <u>Preheated canopy</u> is drier and becomes more flammable.</p> <p>d. <u>Frost and bug-kill</u> can cause a lot of fuel to be available.</p> <p>e. <u>Unusually fine fuels</u> such as:</p> <ul style="list-style-type: none"> • Draped pine needles in manzanita brush stands in northern California. • Tree lichens in the Northwest and Rockies. 	

OUTLINE	AIDS & CUES
<p data-bbox="298 283 747 317">B. Review and Discussion</p> <ul data-bbox="394 369 1039 701" style="list-style-type: none"> <li data-bbox="394 369 1039 621">• Look for fuel characteristic indicators. Think about how they may interact with other indicators. Add your observations to your mental model of the fire, and predict potential fire behavior hazards. <li data-bbox="394 667 1039 701">• Fuel characteristics – five indicators. <p data-bbox="225 751 1016 785">AT THIS TIME, THE INSTRUCTOR SHOULD:</p> <ol data-bbox="204 840 1039 1896" style="list-style-type: none"> <li data-bbox="204 840 1039 1602"> <p data-bbox="204 840 1039 961">1. Facilitate a discussion about the fuel characteristic indicators. Use these questions or develop your own:</p> <ul data-bbox="253 1010 1039 1602" style="list-style-type: none"> <li data-bbox="253 1010 1039 1087">• Do you have any questions about fuel characteristic indicators? <li data-bbox="253 1136 1039 1257">• What fuel characteristics do we have right now? What conditions do we expect to have in the next couple of months? <li data-bbox="253 1306 1039 1428">• If you are going on an incident that is in an area you are not familiar with, what can you do to find out more about the fuel characteristics? <li data-bbox="253 1476 1039 1602">• What other indicators, when combined with fuel characteristic indicators, could have a significant impact on fire behavior? <p data-bbox="225 1650 862 1684"><u>Possible answers:</u> steep slopes and wind.</p> <li data-bbox="204 1732 1039 1810">2. Share a story that highlights the importance of fuel characteristic indicators. <li data-bbox="204 1858 1039 1896">3. Ask students if they have any questions. 	<p data-bbox="1081 283 1219 317">Slide 4-6</p>

OUTLINE	AIDS & CUES
<p data-bbox="201 283 594 317">II. FUEL MOISTURE</p> <div data-bbox="207 369 1052 428" style="border: 2px solid black; padding: 2px;"> <p data-bbox="219 380 837 415">Show Fuel Moisture video and discuss.</p> </div> <p data-bbox="297 476 1019 552">This section addresses fuel moisture and its four indicators.</p> <ul data-bbox="297 604 1036 856" style="list-style-type: none"> <li data-bbox="297 604 993 680">• When fuel moisture content is low, fires will start easily and spread rapidly. <li data-bbox="297 732 1036 856">• Fuel moisture changes diurnally, seasonally, and in an accumulative manner over several seasons or years. <p data-bbox="297 905 521 938">A. Timelag</p> <p data-bbox="391 989 1044 1108">The rate at which a specific size of dead fuel gains or loses moisture; the smaller the fuel size, the shorter the timelag.</p> <ul data-bbox="391 1161 1027 1535" style="list-style-type: none"> <li data-bbox="391 1161 1000 1194">• 1-hour fuels: < ¼ inch in diameter <li data-bbox="391 1247 1027 1281">• 10-hour fuels: ¼–1 inch in diameter <li data-bbox="391 1333 927 1409">• 100-hour fuels: 1–3 inches in diameter <li data-bbox="391 1461 946 1535">• 1000-hour fuels: 3–8 inches in diameter 	<p data-bbox="1076 380 1219 413">Slide 4-7</p> <p data-bbox="1076 615 1219 648">Slide 4-8</p> <p data-bbox="1076 905 1219 938">Slide 4-9</p>

OUTLINE	AIDS & CUES
<p data-bbox="298 283 545 317">B. Indicators</p> <p data-bbox="393 369 992 403">The four indicators of fuel moisture are:</p> <ol data-bbox="393 455 1032 1724" style="list-style-type: none"><li data-bbox="393 455 954 489">1. Low relative humidity (< 25%)<ol data-bbox="488 541 1032 1724" style="list-style-type: none"><li data-bbox="488 541 841 575">a. Critical indicator<li data-bbox="488 617 1032 947">b. Impact on fire behavior Small changes in relative humidity (RH) can significantly impact fine fuels because they lose moisture quickly and become flammable.<li data-bbox="488 989 1032 1724">c. How to monitor RH<ul data-bbox="584 1062 1032 1724" style="list-style-type: none"><li data-bbox="584 1062 1032 1096">• Use a Belt Weather Kit<li data-bbox="584 1138 1032 1724">• Obtain weather information from websites such as: Remote Automated Weather Stations (RAWS) National Oceanic and Atmospheric Administration (National Weather Service; NOAA) <a data-bbox="678 1692 976 1724" href="http://www.nws.noaa.gov">www.nws.noaa.gov	<p data-bbox="1081 283 1235 317">Slide 4-10</p>

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Refer to the Pocket Card for local thresholds for RH. • Use the “Severe Fire Behavior Potential Related to Relative Humidity and Fuel Moisture Content” table in the IRPG. <p>2. Low 10-hour fuel moisture content (< 6%)</p> <p>a. Impact on fire behavior</p> <ul style="list-style-type: none"> • Anticipate fire behavior problems when sticks and small stems (10-hour fuels) have < 6% fuel moisture content. <p>However, in Alaska and the Eastern United States, 10% fuel moisture content is considered low for 10-hour fuels.</p> <ul style="list-style-type: none"> • 10-hour fuels play an important role in carrying the fire, so pay attention to their fuel moisture content. 	

OUTLINE	AIDS & CUES
<p>b. Assess</p> <ul style="list-style-type: none"> • Talk with local dispatch. • Visit websites that contain fuel moisture information. http://www.wfas.net/ • When on the fireline, estimate 10-hour fuel moisture levels by grabbing small twigs and branches to see if they are easy to break or if they just bend. <p>3. Drought conditions</p> <p>a. Impact on fire behavior</p> <p>Drought will cause large dead and down fuels and live fuels to become available to burn.</p> <p>b. Drought indices</p> <p>Typically, these drought indices provide information on a broader scale, and the local conditions may vary. You can find these indices on the Internet:</p> <ul style="list-style-type: none"> • Palmer Drought Severity Index 	

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Keetch-Byrum Drought Index • U.S. Drought Monitor <p>c. Assess local drought conditions</p> <ul style="list-style-type: none"> • Pocket Card (may have threshold for 1000-hour fuel moisture). • Ask local fire personnel. • Look at the vegetation and trees—how dry are the larger dead fuels? • Observe areas where there have been recent fires. Did the large, dead logs partially burn or burn down to ash pits? <p>4. Seasonal drying</p> <p>a. Impact on fire behavior</p> <ul style="list-style-type: none"> • Varies in all geographical areas and occurs at different times of the year. • Affects the fuel moisture in all fuels. 	

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • As seasonal drying progresses, fuels that could not previously support a fire will become available to burn. <p>b. Assess</p> <ul style="list-style-type: none"> • Look at fuel conditions to help determine how far seasonal drying has progressed. • Fine fuels usually dry first, followed by dead and down sticks and logs, then live fuels start drying. 	
<p>C. Review and Discussion</p> <ul style="list-style-type: none"> • Estimate fuel moisture content levels. Add this assessment to your mental model of the fire, and predict potential fire behavior hazards. • Fuel moisture – four indicators. 	<p>Slide 4-11</p>

AT THIS TIME, THE INSTRUCTOR SHOULD:**1. Facilitate a discussion about the fuel moisture indicators. Use these questions or develop your own:**

- What are the fuel moisture conditions at this time? What do we expect the fuel moisture conditions to be in the next couple of months?
- What can you do before going out on an assignment to increase your situation awareness about fuel moisture indicators?

Possible answers: Check websites (RAWS and NOAA) for RH, drought, and seasonal drying information; and talk with dispatch and local fire personnel.

- What fires have you been on where fuel moisture was a critical indicator with fire behavior?
 - What other indicators were present on that fire?
 - Did the indicators change over time, for example, RH decreased?
- 2. Share a story about indicators you observed on the fireline.**
- 3. Optional: Demonstrate how to access RAWS data from a radio or website.**
- 4. Ask students if they have any questions.**

OUTLINE	AIDS & CUES
<p data-bbox="201 283 673 317">III. FUEL TEMPERATURE</p> <div data-bbox="207 369 1052 470" style="border: 2px solid black; padding: 5px;"> <p data-bbox="219 380 946 457">Show Fuel Temperature Indicators video and discuss.</p> </div> <p data-bbox="297 518 1047 596">This section addresses the three indicators for fuel temperature.</p> <ul data-bbox="297 638 1047 835" style="list-style-type: none"> <li data-bbox="297 638 1047 716">• Fuel temperature affects the amount of heat energy and time it takes for fuels to ignite. <li data-bbox="297 758 1047 835">• Very important in fuel types dominated by fine fuels. <p data-bbox="297 884 545 917">A. Indicators</p> <p data-bbox="393 961 1047 995">The three indicators of fuel temperature are:</p> <ol data-bbox="393 1043 1047 1709" style="list-style-type: none"> <li data-bbox="393 1043 1047 1121">1. High temperatures (normally > 85 °F) <ul style="list-style-type: none"> <li data-bbox="488 1169 841 1203">a. Critical indicator <li data-bbox="488 1251 1047 1709">b. Impact on fire behavior <ul style="list-style-type: none"> <li data-bbox="584 1335 1047 1455">• Increase flammability of fine fuels and potential for rate of spread. <li data-bbox="584 1503 1047 1709">• However, temperatures lower than 85 °F combined with low relative humidity can increase fire behavior. 	<p data-bbox="1076 369 1235 403">Slide 4-12</p> <p data-bbox="1076 638 1235 672">Slide 4-13</p> <p data-bbox="1076 863 1235 896">Slide 4-14</p>

OUTLINE	AIDS & CUES
<p>c. How to monitor</p> <p>Take weather readings on a regular basis.</p> <p>2. High percent of fuels with direct sun</p> <p>a. Impact on fire behavior</p> <ul style="list-style-type: none"> • These fuels have accelerated drying rates. • This can increase fuel flammability and fire spread. <p>b. Assess</p> <p>Look for fuels, especially fine fuels, that are in direct sunlight, and anticipate what may happen if the fire moves into those fuels.</p> <p>3. Aspects where fuel temperature is increasing</p> <p>a. Impact on fire behavior</p> <ul style="list-style-type: none"> • Fuels on slopes with direct sunlight will have higher fuel temperatures. • This increases the risk for hazardous fire behavior. 	

OUTLINE	AIDS & CUES
<p data-bbox="488 283 688 317">b. Assess</p> <p data-bbox="583 369 998 491">Pay attention to aspect and anticipate fuel temperature based on sunlight exposure.</p> <p data-bbox="298 539 745 573">B. Review and Discussion</p> <ul data-bbox="394 625 1016 919" style="list-style-type: none"> • When scouting the fire, look for these indicators. Think about how they may change as the day progresses. Continue building your mental model of the fire. • Fuel temperature – three indicators. <p data-bbox="203 1010 993 1043">AT THIS TIME, THE INSTRUCTOR SHOULD:</p> <ol data-bbox="203 1096 1049 1856" style="list-style-type: none"> 1. Facilitate a discussion about fuel temperature indicators. Use these questions or develop your own: <ul data-bbox="251 1266 1023 1598" style="list-style-type: none"> • What are the fuel temperature conditions at this time? How do we expect the fuel temperature conditions to change? • What fires have you been on where fuel temperature was a critical indicator with fire behavior? What other indicators were present on that fire? 2. Share a story that demonstrates the importance of continuously assessing fuel temperature conditions. 3. Ask students if they have any questions. 	<p data-bbox="1078 539 1235 573">Slide 4-15</p>

OUTLINE	AIDS & CUES
<p>IV. TERRAIN</p> <p>Show Terrain Indicators video and discuss.</p> <p>This section addresses terrain and its five indicators.</p> <ul style="list-style-type: none"> • Terrain has been a major factor in numerous fatality fires. • It is one of the “Common Denominators of Fire Behavior on Tragedy Fires” listed in the IRPG. <p>A. Indicators</p> <p>Look for these five indicators as you scout the terrain:</p> <ol style="list-style-type: none"> 1. Steep slopes (> 50%) <ul style="list-style-type: none"> a. Steep slopes are an important indicator of potential hazardous conditions. b. Impact on fire behavior <ul style="list-style-type: none"> • Expect rapid rates of spread due to flame contact and heat transfer. • Expect downhill spotting due to rollouts of burning materials and igniting fuels below. 	<p>Slide 4-16</p> <p>Slide 4-17</p> <p>Slide 4-18</p>

OUTLINE	AIDS & CUES
<p>2. Chutes/chimneys</p> <p>a. Critical indicators</p> <p>b. Impact on fire behavior</p> <p>Look for rapid upslope rates of spread due to steep terrain and updrafts of air (chimney effect).</p> <p>3. Box canyons</p> <p>Expect air to be drawn in from the canyon bottom creating very strong upslope drafts. The result can be extreme fire behavior and can be very dangerous.</p> <p>4. Saddles</p> <p>Expect rapid rates of spread because of wind channeling and less topographic resistance.</p> <p>5. Narrow canyons</p> <p>Expect rapid rates of spread and/or erratic fire behavior:</p> <ul style="list-style-type: none"> • Radiant and convection spotting can produce multiple spot fires over short distances. • Rapid upslope run when fire backing downhill reaches the opposite slope (slope reversal). 	

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Wind eddies may cause erratic fire behavior. <p>B. Review and Discussion</p> <ul style="list-style-type: none"> • As you scout the fire, look for these terrain indicators. The alignment of topography and wind should always be considered a trigger point to reevaluate strategy and tactics. Continue to build your mental model of the fire. • Terrain – five indicators <p>AT THIS TIME, THE INSTRUCTOR SHOULD:</p> <ol style="list-style-type: none"> 1. Facilitate a discussion about terrain indicators. Use these questions or develop your own: <ul style="list-style-type: none"> • What terrain indicators are common in this area? • What fires have you been on where terrain was a critical indicator with fire behavior? What other indicators were present on that fire? • What other indicators, when combined with terrain indicators, could have a significant impact on fire behavior? <p><u>Possible answers:</u> wind, continuous fine fuels, RH, and other indicators.</p> 2. Share a story about being on the fireline and either observing or not observing terrain indicators and how that impacted the decisions you made. 3. Ask students if they have any questions. 	<p>Slide 4-19</p>

OUTLINE	AIDS & CUES
<p>V. WIND</p>	
<p>Show Wind Indicators video.</p>	Slide 4-20
<p>This section addresses wind and its seven indicators.</p>	
<ul style="list-style-type: none"> • Wind is a critical factor influencing fire behavior and is the most difficult of the Look Up, Down and Around indicators to predict. • It is one of the “Common Denominators of Fire Behavior on Tragedy Fires” listed in the IRPG. 	Slide 4-21
<p>A. Indicators</p> <ol style="list-style-type: none"> 1. Surface winds > 10 mi/h <ol style="list-style-type: none"> a. Critical indicator b. Foehn winds <ul style="list-style-type: none"> • Result of high-pressure systems and mountainous terrain. • Accompanied by lower relative humidity and higher temperatures. • Can last for a few hours or several days. 	Slide 4-22

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Winds can be 40–60 mi/h with higher gusts. • Local wind regaining influence over decreasing Foehn wind is extremely dangerous. • More commonly found in Western United States; known by local names such as Santa Ana and Chinook. <p>c. Impact on fire behavior</p> <ul style="list-style-type: none"> • Increase rate and direction of spread. • Transport firebrands over large areas. • Cause wind-driven fire runs and convective heat transfer between fuels. <p>d. Constantly assess</p> <ul style="list-style-type: none"> • Pay attention to weather forecasts. • Throw dust in the air or tie a piece of flagging to your vehicle to tell wind direction. 	

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Take wind readings with a handheld anemometer or other measuring devices. • Reference the “Beaufort Scale for Estimating Wind Speed” in the IRPG. • Monitor RAWS. <p>2. Lenticular clouds</p> <ul style="list-style-type: none"> a. These clouds form over the crest of mountains and indicate moderate to strong winds aloft. b. The winds may surface in the afternoon and could cause fire behavior hazards. <p>3. High, fast-moving clouds</p> <p>If these clouds are moving in a direction different from surface winds, anticipate wind shifts.</p> <p>4. Approaching cold front</p> <p>Expect dangerous conditions due to stronger winds and changing wind direction.</p>	

OUTLINE	AIDS & CUES
<p>5. Cumulonimbus development</p> <p>a. This is an indicator of an approaching thunderstorm.</p> <p>b. Expect strong, erratic downdraft winds and lightning, which can cause sudden and extreme fire behavior.</p> <p>c. If you see virga, downdrafts have begun; anticipate strong and gusty winds.</p>	
<p>6. Sudden calm</p> <p>Expect wind shifts or other changes in weather, which can increase the potential for hazardous fire conditions.</p>	
<p>7. Battling or shifting winds</p> <p>a. Critical indicator</p> <p>b. Expect these winds if you observe:</p> <ul style="list-style-type: none"> • A cold front passage • Wind blowing through saddles • Wind at the confluence of a drainage • Local wind effects 	

OUTLINE	AIDS & CUES
<p style="text-align: center;">c. Weather forecasts can often predict battling or shifting winds.</p> <p>B. Review and Discussion</p> <ul style="list-style-type: none"> • Pay close attention to weather forecasts. When you are on the fireline, observe what the winds are doing at all times! • Wind – seven indicators. <p>AT THIS TIME, THE INSTRUCTOR SHOULD:</p> <ol style="list-style-type: none"> 1. Facilitate a discussion about wind indicators. Use these questions or develop your own: <ul style="list-style-type: none"> • What type of wind conditions should we expect in this area? Do Foehn winds occur in this area? • What fires have you been on where wind and topography were critical indicators? What happened? 2. Share a story about being on the fireline and either observing or not observing wind indicators and how that impacted the decisions you made. 3. Ask students if they have any questions. 	<p>Slide 4-23</p>

OUTLINE	AIDS & CUES
<p>VI. ATMOSPHERIC INSTABILITY</p>	
<p>Show Fire Behavior Indicators video and discuss.</p>	<p>Slide 4-24</p>
<p>This section addresses atmospheric instability and its eight indicators.</p>	
<p>A. Atmospheric Instability</p> <ol style="list-style-type: none"> 1. Definition of atmospheric instability <ol style="list-style-type: none"> a. Stable atmosphere <p>Vertical movement of air is limited, and this decreases fire activity.</p> b. Unstable atmosphere <p>Vertical movement of air is occurring and this tends to increase potential for the fire to develop vertically and grow rapidly.</p> 	<p>Slide 4-25</p>
<p>B. Indicators</p> <p>The eight indicators of atmospheric instability are:</p> <ol style="list-style-type: none"> 1. Good visibility <p>Indicates unstable atmosphere.</p> 2. Gusty winds and dust devils or fire whirls 	<p>Slide 4-26</p>

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> a. Indicates unstable atmosphere. b. Can make fires more dangerous by increasing spotting and starting new fires. 	
<ul style="list-style-type: none"> 3. Cumulus clouds <ul style="list-style-type: none"> a. Indicates unstable atmosphere. b. The more they develop vertically, the more unstable the atmosphere. 	
<ul style="list-style-type: none"> 4. Castellatus clouds in the morning <ul style="list-style-type: none"> a. Indicates unstable atmosphere. b. Could be a warning of thunderstorms in the afternoon. 	
<ul style="list-style-type: none"> 5. Smoke rising straight up <p>Indicates vertical movement and an unstable atmosphere.</p>	
<ul style="list-style-type: none"> 6. Inversion beginning to lift <ul style="list-style-type: none"> a. Indicates atmosphere is becoming unstable. b. The behavior of the fire burning beneath an inversion can change abruptly when the inversion is lifted. 	

OUTLINE	AIDS & CUES
<p>7. Thermal belt</p> <p>Stable air, but fire conditions in thermal belt can remain active during the night.</p> <p>8. Haines index</p> <p>a. Measures the stability and dryness of the lower atmosphere. It can be used to predict the potential for existing fires to become large fires.</p> <p>b. The higher the number (ranges between two and six), the drier and more unstable the atmosphere.</p> <p>c. Listen to weather briefings and look in the Incident Action Plan (IAP) for the Haines Index.</p>	
<p>C. Review and Discussion</p> <ul style="list-style-type: none"> • When you are on the fire, look for atmospheric instability indicators, and estimate potential fire behavior hazards. Continue to build your mental model of the fire. • Atmospheric instability – eight indicators. 	<p>Slide 4-27</p>

AT THIS TIME, THE INSTRUCTOR SHOULD:

- 1. Facilitate a discussion about atmospheric instability indicators. Use these questions or develop your own:**
 - Describe a situation when you observed atmospheric instability indicators. How did those observations change your mental model of the fire?
 - What does the Haines Index tell you?
- 2. Share a story about being on the fireline and either observing or not observing atmospheric instability indicators and how that impacted the decisions you made.**
- 3. Ask students if they have any questions.**

VII. FIRE BEHAVIOR

Show Fire Behavior Indicators video and discuss.

Slide 4-28

This section addresses the eight indicators of fire behavior.

- Fire is a heat source; therefore, it influences and modifies the fire environment.
- Constantly monitor fire behavior by observing column characteristics, flame length, and rate of fire spread.

Slide 4-29

OUTLINE	AIDS & CUES
<p data-bbox="300 283 544 315">A. Indicators</p> <p data-bbox="394 367 1010 445">When on the fireline, look for these eight indicators of fire behavior:</p> <ol style="list-style-type: none"> <li data-bbox="394 493 734 535">1. Leaning column <ol style="list-style-type: none"> <li data-bbox="488 577 1010 703">a. One of the first fire behavior indicators you will see when approaching a fire. <li data-bbox="488 745 998 913">b. Impacts on fire behavior <ul style="list-style-type: none"> <li data-bbox="584 829 998 871">• Rapid rates of spread <li data-bbox="584 871 998 913">• Short-range spotting <li data-bbox="394 955 734 997">2. Sheared column <ol style="list-style-type: none"> <li data-bbox="488 1039 1010 1207">a. Impacts on fire behavior <ul style="list-style-type: none"> <li data-bbox="584 1123 982 1165">• Long-range spotting <li data-bbox="584 1165 1010 1207">• Increase fire behavior <li data-bbox="488 1249 933 1333">b. Avoid working under a sheared column. <li data-bbox="394 1375 847 1417">3. Well-developed column <ol style="list-style-type: none"> <li data-bbox="488 1459 836 1501">a. Critical indicator <li data-bbox="488 1543 1010 1894">b. Impacts to fire behavior <ul style="list-style-type: none"> <li data-bbox="584 1638 917 1722">• Intense burning conditions <li data-bbox="584 1764 966 1806">• Strong downbursts <li data-bbox="584 1848 1010 1894">• Plume-dominated fire 	<p data-bbox="1079 294 1234 325">Slide 4-30</p>

OUTLINE	AIDS & CUES
<p>4. Changing column</p> <p>A changing smoke column can indicate that fire intensity is building.</p>	
<p>5. Trees torching</p> <p>a. Critical indicator</p> <p>b. Expect extreme fire behavior conditions if intermittent single tree torching progresses to groups of trees torching.</p>	
<p>6. Smoldering fires picking up</p> <p>Monitor flame length and spread rate.</p>	
<p>7. Small fire whirls beginning</p> <p>a. Fire is developing vertically and building intensity.</p> <p>b. Potential to transport firebrands.</p>	
<p>8. Frequent spot fires</p> <p>a. Critical indicator</p> <p>b. Anticipate fire behavior hazards</p>	

OUTLINE	AIDS & CUES
<p data-bbox="298 283 747 317">B. Review and Discussion</p> <ul data-bbox="394 369 1049 659" style="list-style-type: none"> <li data-bbox="394 369 1049 573">• Look for fire behavior indicators. What other indicators are influencing fire behavior? Add these observations to your mental model of the fire. <li data-bbox="394 625 964 659">• Fire behavior – eight indicators. <p data-bbox="203 709 993 743">AT THIS TIME, THE INSTRUCTOR SHOULD:</p> <ol data-bbox="203 795 993 1430" style="list-style-type: none"> <li data-bbox="203 795 993 915">1. Facilitate a discussion about fire behavior indicators. Use these questions or develop your own: <p data-bbox="261 968 1003 1001">Think back to previous fires you have been on:</p> <ul data-bbox="253 1054 993 1260" style="list-style-type: none"> <li data-bbox="253 1054 993 1087">• What fire behavior indicators did you observe? <li data-bbox="253 1140 902 1173">• Did anything happen that surprised you? <li data-bbox="253 1226 837 1260">• Were there other indicators present? <li data-bbox="203 1312 993 1430">2. Share a story about observing or not observing fire behavior indicators; then describe how that impacted the decisions you made. 	<p data-bbox="1081 283 1230 317">Slide 4-31</p>

OUTLINE	AIDS & CUES
<p>ADMINISTER EXERCISES: Identifying Indicators</p> <p><u>Exercise Instructions:</u> There are three different video scenarios.</p> <ul style="list-style-type: none"> • Fire Behavior • Eastern Great Basin • Smokejumper <p>Play each video and when it is complete, give the students a few minutes to identify the Look Up, Down and Around indicators on the blank exercise key. Facilitate a discussion using the answer sheet.</p> <p><u>Time:</u> 20 minutes</p> <p><u>Exercise Preparation:</u> Before administering the exercise, instructors should review the exercise video and answer key.</p> <p><u>End of Exercises.</u></p> <div style="border: 2px solid black; padding: 5px; margin-top: 20px;"> <p>Ask students if they have any questions.</p> </div> <div style="border: 2px solid black; padding: 5px; margin-top: 20px;"> <p>Review unit objective.</p> </div>	<p>Slide 4-32</p> <p>Slide 4-33</p> <p>Slide 4-34</p> <p>IR/SR 4-1</p> <p>Slide 4-35</p>

Fire Behavior Exercise Answer Key

Fire Environment Factors	Indicators
Fuel Characteristics	<input checked="" type="checkbox"/> Continuous fine fuels <input checked="" type="checkbox"/> Heavy loading of dead and down <input checked="" type="checkbox"/> Ladder fuels <input checked="" type="checkbox"/> Tight crown spacing (< 20 ft) <input checked="" type="checkbox"/> Special conditions: <input checked="" type="checkbox"/> Firebrand sources <input type="checkbox"/> Frost and bug-kill <input type="checkbox"/> Numerous snags <input type="checkbox"/> Unusual fine fuels <input checked="" type="checkbox"/> Preheated canopy <input type="checkbox"/> High dead to live ratio
Fuel Moisture	<input type="checkbox"/> Low RH (< 25%) <input type="checkbox"/> Low 10-hr FMC (<6%) <input type="checkbox"/> Drought conditions <input checked="" type="checkbox"/> Seasonal drying (sage is not green, but more gray)
Fuel Temperature	<input type="checkbox"/> High temps (> 85 °F) <input checked="" type="checkbox"/> High % of fuels w/direct sun <input type="checkbox"/> Aspect fuel temp. increasing
Terrain	<input checked="" type="checkbox"/> Steep slopes (> 50%) <input checked="" type="checkbox"/> Chutes-Chimneys <input type="checkbox"/> Box canyons <input type="checkbox"/> Saddles <input type="checkbox"/> Narrow canyons
Wind	<input checked="" type="checkbox"/> Surface winds > 10 mph <input type="checkbox"/> Lenticular clouds <input type="checkbox"/> High, fast-moving clouds <input type="checkbox"/> Approaching cold fronts <input type="checkbox"/> Cumulonimbus development <input type="checkbox"/> Sudden calm <input checked="" type="checkbox"/> Battling or shifting winds
Atmospheric Instability	<input checked="" type="checkbox"/> Good visibility <input checked="" type="checkbox"/> Gusty winds and dust devils <input type="checkbox"/> Cumulus clouds <input type="checkbox"/> Castellatus clouds in the a.m. <input checked="" type="checkbox"/> Smoke rises straight up <input type="checkbox"/> Inversion beginning to lift <input type="checkbox"/> Thermal belt
Fire Behavior	<input checked="" type="checkbox"/> Leaning column <input type="checkbox"/> Sheared column <input checked="" type="checkbox"/> Well-developed column <input checked="" type="checkbox"/> Changing column <input checked="" type="checkbox"/> Trees torching <input type="checkbox"/> Smoldering fires picking up <input checked="" type="checkbox"/> Small fire whirls beginning (column starting to spin) <input checked="" type="checkbox"/> Frequent spot fires (due to fuel type)

Eastern Great Basin Exercise Answer Key

Fire Environment Factors	Indicators
Fuel Characteristics	<input checked="" type="checkbox"/> Continuous fine fuels <input type="checkbox"/> Heavy loading of dead and down <input type="checkbox"/> Ladder fuels <input type="checkbox"/> Tight crown spacing (< 20 ft) <input type="checkbox"/> Special conditions: <input type="checkbox"/> Firebrand sources <input type="checkbox"/> Frost and bug-kill <input type="checkbox"/> Numerous snags <input type="checkbox"/> Unusual fine fuels <input type="checkbox"/> Preheated canopy <input type="checkbox"/> High dead to live ratio
Fuel Moisture	<input checked="" type="checkbox"/> Low RH (< 25%) <input type="checkbox"/> Low 10-hr FMC (<6%) <input checked="" type="checkbox"/> Drought conditions <input checked="" type="checkbox"/> Seasonal drying (sage is not green, but more gray)
Fuel Temperature	<input checked="" type="checkbox"/> High temps (> 85 °F) <input checked="" type="checkbox"/> High % of fuels w/direct sun <input type="checkbox"/> Aspect fuel temp. increasing
Terrain	<input type="checkbox"/> Steep slopes (> 50%) <input type="checkbox"/> Chutes-Chimneys <input type="checkbox"/> Box canyons <input type="checkbox"/> Saddles <input type="checkbox"/> Narrow canyons
Wind	<input checked="" type="checkbox"/> Surface winds > 10 mph <input type="checkbox"/> Lenticular clouds <input type="checkbox"/> High, fast-moving clouds <input type="checkbox"/> Approaching cold fronts <input checked="" type="checkbox"/> Cumulonimbus development <input type="checkbox"/> Sudden calm <input checked="" type="checkbox"/> Battling or shifting winds
Atmospheric Instability	<input checked="" type="checkbox"/> Good visibility <input checked="" type="checkbox"/> Gusty winds and dust devils <input checked="" type="checkbox"/> Cumulus clouds <input checked="" type="checkbox"/> Castellatus clouds in the a.m. <input type="checkbox"/> Smoke rises straight up <input type="checkbox"/> Inversion beginning to lift <input type="checkbox"/> Thermal belt
Fire Behavior	<input checked="" type="checkbox"/> Leaning column <input type="checkbox"/> Sheared column <input type="checkbox"/> Well-developed column <input checked="" type="checkbox"/> Changing column <input type="checkbox"/> Trees torching <input type="checkbox"/> Smoldering fires picking up <input checked="" type="checkbox"/> Small fire whirls beginning (column starting to spin) <input type="checkbox"/> Frequent spot fires (due to fuel type)

Smokejumper Exercise Answer Key

Fire Environment Factors	Indicators
Fuel Characteristics	<input type="checkbox"/> Continuous fine fuels <input checked="" type="checkbox"/> Heavy loading of dead and down <input checked="" type="checkbox"/> Ladder fuels <input checked="" type="checkbox"/> Tight crown spacing (< 20 ft) <input checked="" type="checkbox"/> Special conditions: <input checked="" type="checkbox"/> Firebrand sources <input type="checkbox"/> Frost and bug-kill <input checked="" type="checkbox"/> Numerous snags <input type="checkbox"/> Unusual fine fuels <input type="checkbox"/> Preheated canopy <input type="checkbox"/> High dead to live ratio
Fuel Moisture	<input checked="" type="checkbox"/> Low RH (< 25%) <input type="checkbox"/> Low 10-hr FMC (<6%) <input type="checkbox"/> Drought conditions <input type="checkbox"/> Seasonal drying (sage is not green, but more gray)
Fuel Temperature	<input checked="" type="checkbox"/> High temps (> 85 °F) <input type="checkbox"/> High % of fuels w/direct sun <input type="checkbox"/> Aspect fuel temp. increasing
Terrain	<input type="checkbox"/> Steep slopes (> 50%) <input type="checkbox"/> Chutes-Chimneys <input type="checkbox"/> Box canyons <input checked="" type="checkbox"/> Saddles <input type="checkbox"/> Narrow canyons
Wind	<input checked="" type="checkbox"/> Surface winds > 10 mph <input type="checkbox"/> Lenticular clouds <input type="checkbox"/> High, fast-moving clouds <input type="checkbox"/> Approaching cold fronts <input checked="" type="checkbox"/> Cumulonimbus development <input type="checkbox"/> Sudden calm <input type="checkbox"/> Battling or shifting winds
Atmospheric Instability	<input type="checkbox"/> Good visibility <input type="checkbox"/> Gusty winds and dust devils <input checked="" type="checkbox"/> Cumulus clouds <input type="checkbox"/> Castellatus clouds in the a.m. <input type="checkbox"/> Smoke rises straight up <input type="checkbox"/> Inversion beginning to lift <input type="checkbox"/> Thermal belt
Fire Behavior	<input checked="" type="checkbox"/> Leaning column <input type="checkbox"/> Sheared column <input checked="" type="checkbox"/> Well-developed column <input checked="" type="checkbox"/> Changing column <input checked="" type="checkbox"/> Trees torching <input checked="" type="checkbox"/> Smoldering fires picking up <input type="checkbox"/> Small fire whirls beginning (column starting to spin) <input type="checkbox"/> <input checked="" type="checkbox"/> Frequent spot fires (due to fuel type)

UNIT OVERVIEW

Course Firefighter Type 1, S-131

Unit 5 – Decision Making

Time 4 hours

Objectives

1. Demonstrate the ability to apply the Risk Management Process in a changing environment.
2. Demonstrate the ability to assess resource capabilities.
3. Demonstrate the ability to develop tactical and logistical plans.
4. Demonstrate the ability to engage tactically through sand table exercises, locally based sand table exercises (STEX), do a staff ride, or do a paper based exercise of choice.

Strategy

This unit is used to guide students through the decision making process. Instructors will discuss risk management, resource capabilities and planning through lecture and discussion. Exercises will be used to engage the students in tactical procedures.

Instructional Method(s)

- Informal lecture and discussion with PowerPoint
- Exercises

Instructional Aids

- Computer with projector, screen, and presentation software
- Flip charts and markers
- Incident Response Pocket Guide, PMS 461
- Wildland Fire Incident Management Field Guide, PMS 210
- Topographic maps and/or sand tables(s) with props
- TDGS/STEX workbook

Exercise(s)

TDGS/STEX

Evaluation Method(s)

- Review and address questions for student clarification.
- Objectives will be tested in classroom Final Examination (written).

Outline

- I. The Risk Management Process
- II. Elements of the Risk Management Process
- III. Resource Capabilities and Considerations
- IV. Tactical and Logistical Planning
- V. Tactical Decision Exercises

Aids and Cues Codes

The codes in the Aids and Cues column are defined as follows:

IG – Instructor Guide

SW – Student Workbook

HO – Handout

IR – Instructor Reference

SR – Student Reference

Slide – PowerPoint

UNIT PRESENTATION

Course Firefighter Type 1, S-131

Unit 5 – Decision Making

OUTLINE	AIDS & CUES
Present unit title slide.	Slide 5-1
Present unit objectives.	Slide 5-2
I. THE RISK MANAGEMENT PROCESS	Slide 5-3
<p>The Risk Management Process (RMP) helps firefighters organize their decision-making processes. The RMP is located in the IRPG for a reason—it is a critical decision-making tool that every firefighter should be familiar with and use.</p>	Slide 5-4
<p>Your decisions are only as good as your perception of reality. Situation awareness (SA) for firefighters is a term used to describe awareness of the total working environment. Situation awareness combines analytical information and intuitive knowledge. Intuitive decision making is a process of combining information gained through experience and analytical knowledge that allows you to make intuitive decisions.</p>	Slide 5-5
<p>Continuous updating and maintaining of Situation Awareness is essential to incident management. The total working environment, including tactical and logistical information, can overwhelm effective decision making. Therefore, you will need to develop the ability to discern between essential and non-essential information.</p>	Slide 5-6

OUTLINE	AIDS & CUES
<p>In a changing environment, this is a continuous cycle of assessment and evaluation.</p> <p>Tactical plans cannot be made without ensuring that the Standard Firefighting Orders are followed. In relatively low complexity assignments, this can be done intuitively based on experience. In more complex situations, firefighters need to have an organized decision-making process that ensures the Standard Firefighting Orders are being followed and contingencies are being considered.</p>	<p>Slide 5-7</p>
<p>II. ELEMENTS OF THE RISK MANAGEMENT PROCESS</p> <div data-bbox="207 968 1052 1150" style="border: 2px solid black; padding: 5px;"> <p>Discuss reference material in the IRPG and the Wildland Fire Incident Management Field Guide, which can assist in identifying the elements of the Risk Management Process.</p> </div> <p>A. Identify Hazards (Situation Awareness)</p> <div data-bbox="207 1287 1052 1556" style="border: 2px solid black; padding: 5px;"> <p>Review the importance of understanding the leader's intent or incident objectives.</p> <p>Discuss sources for this information and share personal stories that have been positive or negative.</p> </div> <p>1. Objective(s)</p> <p>Knowing objectives is critical. If you know what the end result needs to be, you are in a position of developing and altering strategies and tactics to achieve the desired result.</p>	<p>Slide 5-8</p>

OUTLINE	AIDS & CUES
<p>2. Communication</p> <p>Communication is vital to implementing the Risk Management Process.</p>	
<p>3. Who is in charge?</p> <p>This is usually evident when assigned to a module or crew. However, crews may be used independently for initial attack or special assignment purposes. This may require them to report to someone other than their immediate supervisor.</p>	
<p>4. Scout the fire</p> <p>Know what your fire is doing. You can't develop a plan without knowing what the current situation is.</p>	
<p>5. Previous fire behavior</p> <p>Gives valuable insight as to what to expect. Also helps establish trigger points based on conditions.</p>	
<p>6. Weather forecast</p> <p>Mandatory information; your actions must be based on current and forecasted weather.</p>	

OUTLINE	AIDS & CUES
<p data-bbox="396 283 686 317">7. Local factors</p> <p data-bbox="488 369 1052 575">Many areas have local weather factors that are unique. Ask questions about such factors and share information with appropriate personnel.</p> <div data-bbox="207 625 1052 810" style="border: 2px solid black; padding: 5px;"> <p data-bbox="220 636 1015 800">Ask students if there are other sources of information that will enhance situation awareness (e.g., pocket cards, drought index, unit preparedness level, and fuels advisories).</p> </div> <p data-bbox="298 858 628 892">B. Assess Hazards</p> <ul data-bbox="396 947 987 1236" style="list-style-type: none"> <li data-bbox="396 947 959 1020">• Estimate potential fire behavior hazards. <li data-bbox="396 1073 854 1106">• Identify tactical hazards. <li data-bbox="396 1159 987 1236">• As conditions change, what other safety hazards are likely to exist? <div data-bbox="207 1287 1052 1430" style="border: 2px solid black; padding: 5px;"> <p data-bbox="220 1297 971 1419">Have the students provide examples of hazards (e.g., look up and look down indicators and watchout situations).</p> </div> <ul data-bbox="396 1478 1044 1512" style="list-style-type: none"> <li data-bbox="396 1478 1044 1512">• Consider probability versus severity? <div data-bbox="207 1562 1052 1789" style="border: 2px solid black; padding: 5px;"> <p data-bbox="220 1575 1036 1780">Discuss this example: A fire along a major highway at noon may be different than a fire at rush hour. The probability of an unintended outcome such as a traffic accident would be higher, but the severity would essentially be the same.</p> </div>	<p data-bbox="1078 837 1216 871">Slide 5-9</p>

C. Develop Controls and Make Risk Decisions

Slide 5-10

Discuss with students:

How much information is needed before you come to a decision point?

You may never run out of options; you just run out of time. Since the wildland fire environment is dynamic, decisions are time critical. Rarely will you ever have all of the situation awareness that you desire, but at some point, decisions need to be made and actions taken within the “risk management process.” You can always reevaluate your actions and change if needed. It’s better to be proactive than reactive.

A good decision now may be better than the perfect plan later. However, the decision not to engage may be appropriate if further assessment is warranted.

- Develop control measures that reduce risk.
- Are controls in place to mitigate risk?
- Are selected tactics based on expected fire behavior?
- Have instructions been given and understood?

Slide 5-11

Discuss the concept of using trigger points. Share how you have used them and what they were based on. Who establishes them?

- Consider risk versus gain

Emphasize that the leader’s first responsibility to their assigned personnel will always be their safety. Often, you have to ask yourself whether or not the risks involved are worth the benefit. There are differences between accepting risk for yourself and accepting risk to your personnel.

Is the assignment operationally feasible?

Is the identified risk regardless of the source worth the tactical, logistical, physical, or resource benefit?

Can your risk be controlled or mitigated?

Be aware of different perspectives of acceptable risk. As a leader, someone may be willing to take on risks that you are uncomfortable with.

D. Implement Controls

- Ensure controls are in place and being implemented by personnel.
- Ensure controls are integrated [in the] operational plan and understood at all levels.

Slide 5-12

E. Supervise and Evaluate

- Are controls adequately mitigating the hazards?

Slide 5-13

Stress that oversight is part of maintaining situation awareness, thus making the RMP a continuous cycle of assessment and evaluation.

Sometimes things don't go according to plan. If the outcome or the result did not meet your intent, then continue through the Risk Management Process. It's important to be flexible and adaptable to the situation.

III. RESOURCE CAPABILITIES AND CONSIDERATIONS

A. Indicators of Incident Complexity

Refer the students to the Indicators of Incident Complexity and the Sizeup Report sections in the IRPG.

Like the Risk Management Process of evaluating risk, the complexity of your situation also needs to be evaluated. Some common indicators of complexity are:

- Location (area involved)
- Threat to life, environment, and property
- Political sensitivity
- Organizational complexity
- Jurisdictional boundaries
- Values at risk
- Weather

Emphasize that if complexity is higher than your abilities and qualifications, order the next level of chain of command and assess your needs.

Slide 5-14

OUTLINE	AIDS & CUES
<p>B. Resource Needs</p> <ul style="list-style-type: none"> • Order what you think you need, for today and tomorrow, based on your assessment of the situation. <div style="border: 2px solid black; padding: 5px; margin: 10px 0;"> <p>Explain that as an FFT1 or ICT5, you need to gain knowledge of what tools are available to you and their capabilities and limitations (e.g., PMS 210 and IRPG).</p> </div> <ul style="list-style-type: none"> • Match the right tool to the job. Right place, right form, right amount. 	<p>Slide 5-15</p>
<p>C. Resource Ordering</p> <ul style="list-style-type: none"> • Be specific. • Be timely. • Use proper chain of command and local protocol. 	<p>Slide 5-16</p>
<p>IV. TACTICAL AND LOGISTICAL PLANNING</p> <p>A. Operational Planning Factors to Consider</p> <ul style="list-style-type: none"> • Contingency planning is a necessity. Backup plans need to be solidified and discussed before the need to implement them. All firefighters need to understand the fallback plan when the primary plan is no longer valid. Quick transitions to alternative plans are essential. 	<p>Slide 5-17</p>

OUTLINE	AIDS & CUES
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- Base plans on resource capability and availability.
- Ensure lines of communication are effective (e.g., radio frequency availability, incompatible systems, and lack of repeater coverage).
- Evaluate human factor elements (e.g., mental and/or physical condition of the resources, qualifications and experience, crew cohesion, personality conflicts and hazardous attitudes).
- Consider jurisdictional and political issues (e.g., landownership, wilderness restrictions, rural fire boundaries, and urban interface).

Discuss with students any local operational planning concerns.

B. Logistical Planning Factors to Consider

- Tactics can be limited when logistical considerations are overlooked.
- It's important to stay ahead of the power curve. Be thinking what your needs will be into the future. It takes time to provide good, adequate support.
- Ground support versus air support; consider accessibility, travel times, and routes.

Slide 5-18

OUTLINE	AIDS & CUES
<ul style="list-style-type: none"> • Gain local knowledge of what resources are available. <div style="border: 2px solid black; padding: 5px; margin: 10px 0;"> <p>Discuss with students the signs and symptoms that indicate logistical support is needed (e.g., food, water, and camping gear).</p> </div> <p>V. TACTICAL DECISION EXERCISES</p> <p>EXERCISE: Tactical Decision Games (TDGS)</p> <p><u>Purpose:</u> To give students experience in a variety of decision making scenarios.</p> <p><u>Time:</u> 2 hours</p> <p><u>Exercise Preparation:</u> Instructors may choose the included sand table exercises, create other locally based sand table exercises (STEX), do a staff ride, or do a paper based exercise of choice.</p> <p><u>Exercise Instructions:</u> For instructions and tips on conducting a TDGS, refer to http://www.fireleadership.gov/toolbox/tdg_library/default.htm.</p> <p>The following exercises are designed to bring together concepts from the preceding units with emphasis on tactical decision making using the IRPG. All exercises are written to target individuals at the FFT1 or ICT5 level.</p> <p>If the student body does not have experience participating in TGD/STEX, facilitators should consider orienting the students to this type of instructional format to better prepare them for the following exercises.</p>	<p>Slide 5-19</p>

OUTLINE	AIDS & CUES
<p>Instructors may want to demonstrate a STEEX exercise to inexperienced STEEX players.</p> <p>Have students work in teams of 4 to 6 with one facilitator per team. Select a student to be the leader. All students are encouraged to use their reference material. The use of a flip chart or something equivalent is recommended for each team during the exercises.</p> <p>Instructors are to document, on the exercise evaluation forms, the team's performance concerning standard operating procedures. For students to understand what their team will be evaluated on, copies of the evaluation forms are in their workbooks. Exercises can and should be modified to address local area relevance as long as the unit objectives are met.</p> <p>Allow approximately 30 minutes to complete each exercise including the sand table setup and the after action reviews (AAR). Conducting an AAR is useful in terms of reviewing the exercise and developing good operational habits.</p>	<p>IR/SR 5-1</p>

OUTLINE	AIDS & CUES
<p><u>Exercise 1: Aviation</u></p> <p><u>Objective:</u> Students must decide how to utilize the proper procedures and tactics when an assignment involves directing helicopter bucket drops to support ground resources.</p> <p>Play video.</p> <p><u>Scenario:</u> It is July 14 at 0900 hours and you are a crew boss on a Type 2 hand crew assigned to the Meadow Fire. It is your second shift on the fire. Your crew has been using direct attack handline with occasional helicopter bucket support.</p> <p>The Meadow Fire is actively burning in timber and has a heavy fuel load of downed timber. A helicopter has been requested to assist your crew to control a spot fire. It is starting to show more smoke and has potential to escape containment lines and move toward some ladder fuels near a tight timber canopy. You can hear the helicopter in the distance, but you cannot see it. A minute later you can see the helicopter dropping water and going directly away from you.</p> <p>What do you do now?</p> <p><u>Fire Size:</u> Spot fire approximately 1 acre.</p> <p><u>Fuel Type:</u> Timber.</p> <p><u>Fire Behavior:</u> Creeping and smoldering. Maximum flame lengths of 2 feet. Rate of spread of 3 chains per hour.</p> <p><u>Assignment:</u> Your crew boss assigns you to control a spot that was previously contained by handline. You have directed your crew to reinforce the handline and to reduce the ladder fuels in key areas.</p>	<p>Slide 5-20</p> <p>Slide 5-21</p> <p>Slide 5-22 Slide 5-23</p>

OUTLINE	AIDS & CUES
<p><u>Resources Assigned:</u> You and your crew of five firefighters have two radios and one Type 2 helicopter; the call sign is 912KW.</p> <p><u>Hazards:</u> Fire behavior includes potential torching and subsequent spotting, snags, air operations, and working on a large spot fire away from the main fire.</p> <p><u>Communication:</u> Tactical 168.200, air to ground 170.000</p> <p><u>Exercise Execution:</u> Allow a minute for the students to decide on their course of action.</p> <p>The instructor should be looking for communication skills and passing pertinent information that can be found in the Directing Retardant and Bucket Drops (IRPG) and the Aviation Watch Out Situations (IRPG).</p> <p>The “Murphy’s Law Suggestions” listed below (or use one of your own) can be added as “what ifs” at any time during the exercise to raise the stress level of the leader.</p> <ul style="list-style-type: none"> • Late in the helicopter fuel cycle. • Another crew requests your helicopter. • Rotor wash increases fire behavior. • Pilot can’t find you due to smoke, etc. • Variable cross winds complicate flight paths. • No communication with pilot; dropping blindly. • People not clearing the drop site; pilot concerned. 	
<p>Instructor conducts an AAR.</p>	

OUTLINE	AIDS & CUES
<p><u>Exercise 2: Downhill Line</u></p> <p><u>Objective:</u> Students must assess a downhill line construction assignment and determine how to proceed. Then they must communicate their decisions to the appropriate individuals.</p> <div data-bbox="207 583 1052 640" style="border: 2px solid black; padding: 2px;"> <p>Play video.</p> </div> <p><u>Scenario:</u> It is August 2 at 0800 and you are a crew boss with the Rush Valley Regulars, a Type 2 crew assigned to the Willow Creek Fire which is being managed by a Type 2 incident management team. Your identifier is Crew B.</p> <p>Your crew boss wanted to have the entire crew start at the bottom near the confluence of Pioche and Willow Creeks and work uphill going direct. However, due to local initial attack priorities, the helicopter was released after only shuttling Crew A and the crew boss to the bottom. Crew B was left on the plateau at the end of the dozer line. There is no road access to the confluence of Willow and Pioche Creeks.</p> <p><u>Fire Size:</u> Crew assigned to a segment of a 5,000 acre fire.</p> <p><u>Fuel Type:</u> Primarily timber with a grass and brush mix.</p> <p><u>Terrain:</u> Steep with extremely rocky ridges with numerous rock outcrops.</p> <p><u>Fire Behavior:</u> Currently smoldering; however, yesterday during peak burning period, fire spread was 20 chains per hour and maximum flame lengths were 10 feet.</p>	<p>Slide 5-24</p> <p>Slide 5-25</p> <p>Slide 5-26 Slide 5-27</p>

OUTLINE	AIDS & CUES
<p><u>Observations:</u> Temperature 70 °F; RH 25%; wind N/NW at 3–5 mi/h until mid-afternoon, at that time, forecasted to shift to the W/SW.</p> <p><u>Assignment:</u> Hold the fire south of the main spur ridge between the confluence of Pioche and Willow Creeks and the end of the dozer line on the plateau.</p> <p>The crew boss now wants your crew to anchor at the dozer line on top and construct direct handline downhill as Crew A anchors at the bottom and works up.</p> <p><u>Resources Assigned:</u> You have three experienced firefighters and three rookie firefighters on your crew.</p> <p><u>Hazards:</u> Downhill fireline, fire behavior, terrain.</p> <p><u>Communication:</u> Tactical 168.050</p> <p>Considering all information, how do you proceed?</p>	

Exercise Execution:

Allow 5 minutes for the students to decide on their course of action.

The facilitator should be looking for implementation of the Risk Management Process (IRPG) and utilization of the Downhill Line Checklist (IRPG).

The “Murphy’s Law Suggestions” listed below (or use one of your own) can be added as “what ifs” at any time during the exercise to raise the stress level of the leader.

- You recognize a wind shift.
- Lookout can no longer see you because of the smoke or position.
- Slow going, too much work.
- You start to encounter numerous spot fires.
- Fingers with pockets of unburned fuel.

Instructor conducts an AAR.

OUTLINE	AIDS & CUES
<p><u>Exercise 3: Structure Protection</u></p> <p><u>Objective:</u> Students must assess a structure protection assignment and determine how to proceed. They must also communicate their decisions to the appropriate individuals.</p> <div style="border: 2px solid black; padding: 5px; margin: 10px 0;">Show video.</div> <p><u>Scenario:</u> It is September 7 at 0900 and you are the lead firefighter on Engine 76. Your engine is assigned to the Achin structure group on the Dutch Fire.</p> <p>The Dutch Fire started the previous day and burned actively all day, pushed by a south wind. However, during the night, it slowed considerably with minimal spread. At the present time, the Flores Mine Road is holding the fire on the north flank.</p> <p>The fire has good spread potential, as today's winds are expected to exceed 20 mi/h out of the south. Typical wind conditions for this area are out of the west, blowing downhill at 10 mi/h. At lower elevations the wind is typically cross-canyon, out of the south.</p> <p>Achin Hills is comprised of approximately 47 residences situated on about 60 acres. Of the residences, about 17 are occupied year round, the remainder being vacation homes or vacant. All roads in this area are single-lane dirt roads. An extremely narrow substandard road with very few turnouts serves the area.</p> <p><u>Fuel Type:</u> Brush and grass, with scattered pines and scrub oaks.</p>	<p>Slide 5-28</p> <p>Slide 5-29</p> <p>Slide 5-30 thru Slide 5-33</p>

OUTLINE	AIDS & CUES
<p><u>Terrain:</u> Achin Hills sits between 2,900 and 3,200 feet in elevation on an eastern aspect with an average slope of about 20% in and around the structures, and in excess of 30% in the adjacent hillsides. There are numerous drainages and gullies throughout the area.</p> <p><u>Observations:</u> Temperature, 75 °F; RH, 20%; winds south, 2–3 mi/h.</p> <p><u>Assignment:</u> Your engine has been assigned to do structure protection along David Road. You are to check three structures and get back to your supervisor with your plan of action and, if agreed, to implement the plan.</p> <p><u>Resources Assigned:</u> Engine 76 personnel include the engine boss, you (FFT1), an engine operator, and a rookie firefighter.</p> <p><u>Hazards:</u> Structures, access, roads, possible evacuations, entrapment, hazardous materials.</p> <p><u>Communication:</u> Tactical 168.050</p> <p><u>Exercise Execution:</u> Allow 5 minutes for the students to decide on their course of action.</p> <p>The instructor should be looking for implementation of the Risk Management Process (IRPG), Structure Protection Checklist (IRPG), and the Structure Assessment Checklist (IRPG).</p>	

OUTLINE	AIDS & CUES
<p>The “Murphy’s Law Suggestions” listed below can be added as “what ifs” at any time during the exercise to raise the stress level of the leader or use one of your own:</p> <ul style="list-style-type: none">• The fire spots over the ridge and down below you.• A homeowner refuses to allow you on his property.• You cannot see the main fire over the ridge.• The wind starts to increase.• The water system goes out of service.• An unfriendly dog is in the assessment area.• Hazards exist near homes. <p>Instructor conducts an AAR.</p>	

OUTLINE	AIDS & CUES
<p><u>Exercise 4: Initial Attack</u></p> <p><u>Objective:</u> Students must assess an initial attack assignment and determine how to proceed. They must communicate their decisions to the appropriate personnel.</p> <div style="border: 2px solid black; padding: 5px; margin: 10px 0;">Play video.</div> <p><u>Scenario:</u> It is August 2 at 1730 hours, and your crew of five firefighters has put in a full day of falling hazard trees and hand-piling brush in Canyon Winds Campground. You report to dispatch that your crew is “returning to station.”</p> <p>Just a few miles northeast of the campground on Highway 55, the crew comes across a vehicle accident. A car has run off the road and hit a boulder. The car is fully engulfed in flames and has started a wildfire. You notice that two elderly people, probably occupants, are out of the car and appear to be uninjured. They are obviously quite concerned about the situation. Traffic is backed up on the highway just past the local rural grocery store.</p> <p><u>Fire Size:</u> ¼ acre.</p> <p><u>Fuel Type:</u> Primarily timber with a grass and brush mix.</p> <p><u>Terrain:</u> Slopes are steep, averaging 45% with valley-to-ridge elevation gains of 3,000 feet.</p> <p><u>Fire Behavior:</u> Flame lengths of 1 to 2 feet, rate of spread of 5 chains an hour.</p> <p><u>Observations:</u> Temperature 70 °F; RH 25%; wind W/SW at 5 mi/h.</p>	<p>Slide 5-34</p> <p>Slide 5-35</p> <p>Slide 5-36</p>

OUTLINE	AIDS & CUES
<p><u>Assignment:</u> Determine type of initial attack, and notify dispatch.</p> <p><u>Resources Assigned:</u> You have five firefighters with hand tools and chain saws.</p> <p><u>Hazards:</u> Snags, fire behavior, terrain, traffic, hazardous materials.</p> <p>You are the only firefighters on scene – what do you do?</p> <p><u>Exercise Execution:</u> Allow a minute for the students to decide on their course of action.</p> <p>The instructor should be looking for communication skills and the passing of pertinent information to dispatch that can be found in the Sizeup Report (IRPG) and the Vehicle Accident Checklist (IRPG) and Initial Attack Safety Checklist (Wildland Fire Incident Management Field Guide).</p> <p>The “Murphy’s Law Suggestions” listed below can be added as “what ifs” at any time during the exercise to raise the stress level of the leader or use one of your own:</p> <ul style="list-style-type: none">• Local volunteer fire department arrives on scene.• One of the occupants complains of injury.• Fire is headed towards power lines.• Traffic driving through scene.• Car is leaking fuel that is running into the creek.	
<p>Instructor conducts an AAR.</p>	

OUTLINE	AIDS & CUES
<p><u>Exercise 5: Initial Attack Support</u></p> <p><u>Objective:</u> Students must assess an initial attack assignment in unfamiliar territory and determine how to proceed. Then they must communicate their decisions to the appropriate individuals.</p> <div data-bbox="207 590 1052 646" style="border: 2px solid black; padding: 2px;"> <p>Play video.</p> </div> <p><u>Scenario:</u> It is November 10 and you are a crew leader on a western Type 1 crew, which has recently arrived at the Coastal Heron Wildlife Sanctuary in southern Mississippi to support initial attack efforts. This is the first time the crew has been dispatched to the southeast, and the crew is excited to see the Gulf Coast.</p> <p>Your crew has been fighting fire all season in the Rockies, and the superintendent has commented that you have great leadership skills, a good working knowledge of fire, and is going to count on you to perform more challenging tasks.</p> <p>Coastal Heron Wildlife Sanctuary is a 40,000 acre wildlife management area bordered by residences, businesses, and highways. The area is made up of mostly “heavy” southern rough fuel types with scattered hardwood drainages, bogs, and long leaf pine savannahs.</p> <p>The in-brief given by the Fire Management Officer (FMO) on the crew’s arrival details the recent weather and fuel conditions. It is peak fire season for the area. Temperatures have been in the low 70s, and the humidity has been averaging 33 percent.</p>	<p>Slide 5-37</p> <p>Slide 5-38</p>

OUTLINE	AIDS & CUES
<p>The Fire Management Officer points out that the sea breeze has started at around 1300 hours every day for the past week. He also mentions that the Keetch Byram Drought Index (KB DI) is almost 350; therefore, the drainages should be holding water. He mentions that your task force leader will give more specifics if you have questions.</p> <p><u>Fire Size:</u> 25 acres.</p> <p><u>Fuel Type:</u> Heavy southern rough.</p> <p><u>Terrain:</u> Flat.</p> <p><u>Fire Behavior:</u> Flame lengths are 6–8 feet and occasional torching in the pines is observed. Spotting is a factor.</p> <p><u>Observations:</u> Winds, northwest 5–7 mi/h, gusts to 10; RH, 31%.</p> <p><u>Assignment:</u> You are informed that your crew will be divided, and each crew will be assigned to a separate task force. Your crew is on Task Force Bravo, which was dispatched to initial attack a fire 25 minutes ago, and the FMO wants your crew to assist them as soon as possible. Upon arriving at the fire, you radio your task force leader for instructions. His response is “Glad you’re here. We have most of our folks on the right flank trying to corral this thing. Why don’t you assist the tractor plow unit on the left flank? Contact is Tractor 49. Oh, and heads up, this thing is walking the dog!”</p> <p><u>Resources Assigned:</u> Your crew, tractor 49, Task Force Leader Bravo, other miscellaneous resources unknown.</p> <p><u>Hazards:</u> Entrapment, traffic, erratic fire behavior, snags, fuel type, unfamiliar with tactics, unfamiliar with safety zones.</p>	<p>Slide 5-39 Slide 5-40 Slide 5-41</p>

OUTLINE	AIDS & CUES	
<p><u>Exercise Execution:</u> Allow 5 minutes for the players to decide on their course of action.</p> <p>The facilitator should be looking for implementation of the Risk Management Process (IRPG).</p> <p>The “Murphy’s Law Suggestions” listed below can be added as “what ifs” at any time during the exercise to raise the stress level of the leader or use one of your own:</p> <ul style="list-style-type: none"> • Mandatory indirect fireline on left flank. • Task Force Leader/Incident Commander (IC) cannot be reached by radio. • Tractor 49 cannot be reached by radio. • Tractor 49 gets bogged down. • Sea breeze arrives early. • Fire jumps indirect line, making escape route to the road impossible. • Drainage to the north is very dry (if students choose it for deployment site); KBDI is 675. • Plowed lines begin to fill up with water, making footing difficult at best. • An irate citizen shows up and demands to know what is going to be done to protect his home. 		
<table border="1" style="width: 100%;"> <tr> <td style="padding: 5px;">Instructor conducts an AAR.</td> </tr> </table>		Instructor conducts an AAR.
Instructor conducts an AAR.		

OUTLINE	AIDS & CUES
<p><u>Exercise 6: Lookout</u></p> <p><u>Objective:</u> Students must assess a lookout assignment and determine how to proceed. Then they must communicate their decisions to the appropriate individuals.</p> <div style="border: 2px solid black; padding: 5px; margin: 10px 0;">Play video.</div> <p><u>Scenario:</u> It is October 24 at 0700, and your crew is assigned to Division Zulu (Z) on the Stanley Incident. Division Z can be described as having underslung handline through moderate to heavy chaparral brush on moderate terrain.</p> <p>You have recently moved into one of the lead crew member slots with the Pinnacle Hotshots. Your supervisor has indicated that you have good potential to move up to more advanced positions in fire by keeping up the good work.</p> <p>During the previous night shift, hand crews made good progress but stopped short of an underslung segment below the road. The crew superintendent wants one crew to stay on the ridge top and finish the handline to the road. The other two crews will anchor at the road and pick up the underslung segment below the road. The crew superintendent feels it can be done before the onset of the peak burning conditions.</p> <p><u>Fire Size:</u> 60,000 acres.</p> <p><u>Fuel Type:</u> Chaparral brush combination of fuel models 4 and 5.</p> <p><u>Terrain:</u> Slopes average 30%.</p>	<p>Slide 5-42</p> <p>Slide 5-43</p> <p>Slide 5-44</p>

OUTLINE	AIDS & CUES
<p><u>Fire Behavior:</u> Currently smoldering.</p> <p><u>Observations:</u> The weather forecast in the Incident Action Plan (IAP) indicates expected high temperature of 100 °F; RH at 21%; wind, W-SW, 6-10 mi/h with the possibility of a slight Santa Ana wind condition. Currently it is 0700 with a temp of 65 °F; RH 45% and no wind.</p> <p><u>Assignment:</u> You are the lookout for the crew today. Your crew's assignment is to contain the underslung segment of line before the heat of the day.</p> <p><u>Resources Assigned:</u> One Type 1 crew.</p> <p><u>Hazards:</u> Snags, fire behavior, downhill line, entrapment.</p> <p>The crew superintendent hurries away before taking time to brief you on where you are to be located. Looking around, you notice a good vantage point on a larger hill adjacent to the fire. How do you proceed?</p> <p>Execution: Allow 5 minutes for the students to decide on their course of action.</p> <p>The instructor should be looking for implementation of the LCES checklist, specifically the lookout duties (IRPG).</p>	

OUTLINE	AIDS & CUES
<p>The “Murphy’s Law Suggestions” listed below can be added as “what ifs” at any time during the exercise to raise the stress level of the leader (or use one of your own).</p> <ul style="list-style-type: none"> • Smoke obscures your view with the crew(s). • Crew superintendent changes tactics to encircle spots (indirect). By doing that, you can no longer see the crew. • One of the crews is having a difficult time describing their location to you. • You are scanning radio channels and hear air attack calling your superintendent. There is no response. What can you do? • Change in wind condition. • Spot fires building under crew. • Sling psychrometer breaks. 	
<p>Instructor conducts an AAR.</p>	
<p>Review unit objectives.</p>	
<p>Review course objectives.</p>	<p>Slide 5-45</p>
<p>Administer final test.</p>	
<p>Administer final test.</p>	<p>Slide 5-46</p>
<p>Administer final test.</p>	

EXERCISE EVALUATION FORM

Exercise 1: Aviation

Team Leader: _____
 Team Members: _____

Assign points based on the team’s initiative to apply and adhere to the standards in the IRPG and the Wildland Fire Incident Management Field Guide. Use the following scale to rate exercise:

POSSIBLE POINTS

- 3 = DID NOT MEET INPUT OBJECTIVE**
- 4 = MET INPUT OBJECTIVE**
- 5 = EXCEEDED INPUT OBJECTIVE**

STANDARDS	POINTS 3-5	REMARKS
1. Give general location on incident.		
2. Describe target from your location and explain mission.		
3. Assure pilot all personnel are safe and know aircraft intentions before the drop.		
4. Finalize location with: clock direction, position on slope, prominent landmarks, aspect etc.		
5. Establish anchor point and work from it.		
6. Maintain effective communication between ground and air.		
7. Give feedback to pilot about drop accuracy. Report low drops immediately. Be honest and constructive.		
TOTAL POINTS		

TIME TO COMPLETE _____

EXERCISE EVALUATION FORM

Exercise 2: Downhill Line

Team Leader: _____
 Team Members: _____

Assign points based on the team's initiative to apply and adhere to the standards in the IRPG and the Wildland Fire Incident Management Field Guide. Use the following scale to rate exercise:

POSSIBLE POINTS

- 3 = DID NOT MEET INPUT OBJECTIVE**
- 4 = MET INPUT OBJECTIVE**
- 5 = EXCEEDED INPUT OBJECTIVE**

STANDARDS	POINTS 3-5	REMARKS
1. Supervisor and overhead discussed assignment prior to commitment. TFLD or ICT4 qualified or better stays with job until complete.		
2. Decision made after proposed line is scouted by supervisor of involved crew.		
3. LCES coordinated for all personnel. Supervisor is in direct contact with lookout who can see the fire. Communication established between all crews. Rapid access to safety zones in case the fire crosses below.		
4. Direct attack used whenever possible. If not possible, line should be completed between two anchor points and fired out.		
5. Fireline will not lie in or adjacent to a chute or chimney.		
6. Starting point will be anchored for personnel building line down from the top.		
TOTAL POINTS		

TIME TO COMPLETE _____

EXERCISE EVALUATION FORM

Exercise 3: Structure Protection

Team Leader: _____
 Team Members: _____

Assign points based on the team’s initiative to apply and adhere to the standards in the IRPG and the Wildland Fire Incident Management Field Guide. Use the following scale to rate exercise:

- POSSIBLE POINTS**
3 = DID NOT MEET INPUT OBJECTIVE
4 = MET INPUT OBJECTIVE
5 = EXCEEDED INPUT OBJECTIVE

STANDARDS	POINTS 3-5	REMARKS
1. Determine if road access meets equipment needs (width, drivable surface, grade, clearance problems, bridges, turnouts and staging areas).		
2. Determine property address or ranch name, etc., and if residents are on site.		
3. Evaluate structural elements and debris such as the roof material, exposed wood siding, attached decks, windows facing heat source, wood piles, and other flammables.		
4. Determine if the structure has adequate defensible space.		
5. Determine if hazardous materials are present (pesticides, fuel, LPG tanks, etc.).		
6. Determine available water supply (hydrant, ponds, storage tanks, etc.).		
7. Estimate the type and number of resources needed to implement the protection plan.		
TOTAL POINTS		

TIME TO COMPLETE _____

EXERCISE EVALUATION FORM

Exercise 4: Initial Attack

Team Leader: _____
 Team Members: _____

Assign points based on the team's initiative to apply and adhere to the standards in the IRPG and the Wildland Fire Incident Management Field Guide. Use the following scale to rate exercise:

POSSIBLE POINTS

- 3 = DID NOT MEET INPUT OBJECTIVE**
- 4 = MET INPUT OBJECTIVE**
- 5 = EXCEEDED INPUT OBJECTIVE**

STANDARDS	POINTS 3-5	REMARKS
1. First arrival: size up fire and report to dispatch. Do not cross the head of the fire unless it can be done safely. Park vehicles in a safe place, pointing away from the fire, windows closed, and doors unlocked, and keys left in the ignition.		
2. Determine an initial attack plan based on the sizeup. Determine: escape routes and safety zones, anchor points, hazards, where to attack, direct or indirect, line specifications, additional needs, locate and preserve point of origin.		
3. Brief the crew and begin work. Make sure everyone understands their work assignment. Take prompt decisive actions during the early stages.		
4. Preview the Initial Attack Safety Checklist found in the PMS 210 as needed.		
TOTAL POINTS		

TIME TO COMPLETE _____

EXERCISE EVALUATION FORM

Exercise 5: Initial Attack (Support)

Team Leader: _____
 Team Members: _____

Assign points based on the team’s initiative to apply and adhere to the standards in the IRPG and the Wildland Fire Incident Management Field Guide. Use the following scale to rate exercise:

POSSIBLE POINTS

3 = DID NOT MEET INPUT OBJECTIVE

4 = MET INPUT OBJECTIVE

5 = EXCEEDED INPUT OBJECTIVE

STANDARDS	POINTS 3-5	REMARKS
1. Situation Awareness: objectives, communication, who’s in charge, previous fire behavior, weather forecast, local factors.		
2. Hazard Assessment: estimate potential fire behavior hazards, look up/down/around indicators, other safety hazards, consider severity vs. probability.		
3. Hazard Control. Fire Orders and the LCES checklist are mandatory; establish anchor points, downhill checklist if needed, other controls?		
4. Decision point. Are hazard controls in place for identified hazards? Are tactics based on expected fire behavior? Have instructions been given and understood? If any of the above is NO, then reassess.		
5. Evaluate: personnel and the situation. Factors: experience, distractions, fatigue, stress, attitude, conditions, etc.		
TOTAL POINTS		

TIME TO COMPLETE _____

EXERCISE EVALUATION FORM

Exercise 6: Lookout

Team Leader: _____
 Team Members: _____

Assign points based on the team’s initiative to apply and adhere to the standards in the IRPG and the Wildland Fire Incident Management Field Guide. Use the following scale to rate exercise:

POSSIBLE POINTS

- 3 = DID NOT MEET INPUT OBJECTIVE**
- 4 = MET INPUT OBJECTIVE**
- 5 = EXCEEDED INPUT OBJECTIVE**

STANDARDS	POINTS 3-5	REMARKS
1. Your location: is your location safe? Do you have access to an escape route and safety zone? Can you see the fire adequately?		
2. Crew’s location: stay informed of crew location; have changing priorities or conditions changed the crew’s location? Make positive confirmation (visual, mirror flash, etc.). Are multiple lookouts needed? Will smoke or terrain obscure view?		
3. Communication: establish and maintain communications, report changes in fire behavior, weather conditions and spot fires immediately.		
4. Escape routes and safety zone locations: know the location of the crew’s Safety Zone(s) and Escape Route(s) and notify the crew should they become compromised.		
TOTAL POINTS		

TIME TO COMPLETE _____

EXERCISE EVALUATION FORM

Exercise:

Team Leader: _____
 Team Members: _____

Assign points based on the team’s initiative to apply and adhere to the standards in the IRPG and the Wildland Fire Incident Management Field Guide. Use the following scale to rate exercise:

Possible Points

- 3 = DID NOT MEET INPUT OBJECTIVE**
- 4 = MET INPUT OBJECTIVE**
- 5 = EXCEEDED INPUT OBJECTIVE**

STANDARDS	POINTS 3-5	REMARKS
1.		
2.		
3.		
4.		
5.		
6.		
7.		
TOTAL POINTS		

TIME TO COMPLETE _____

