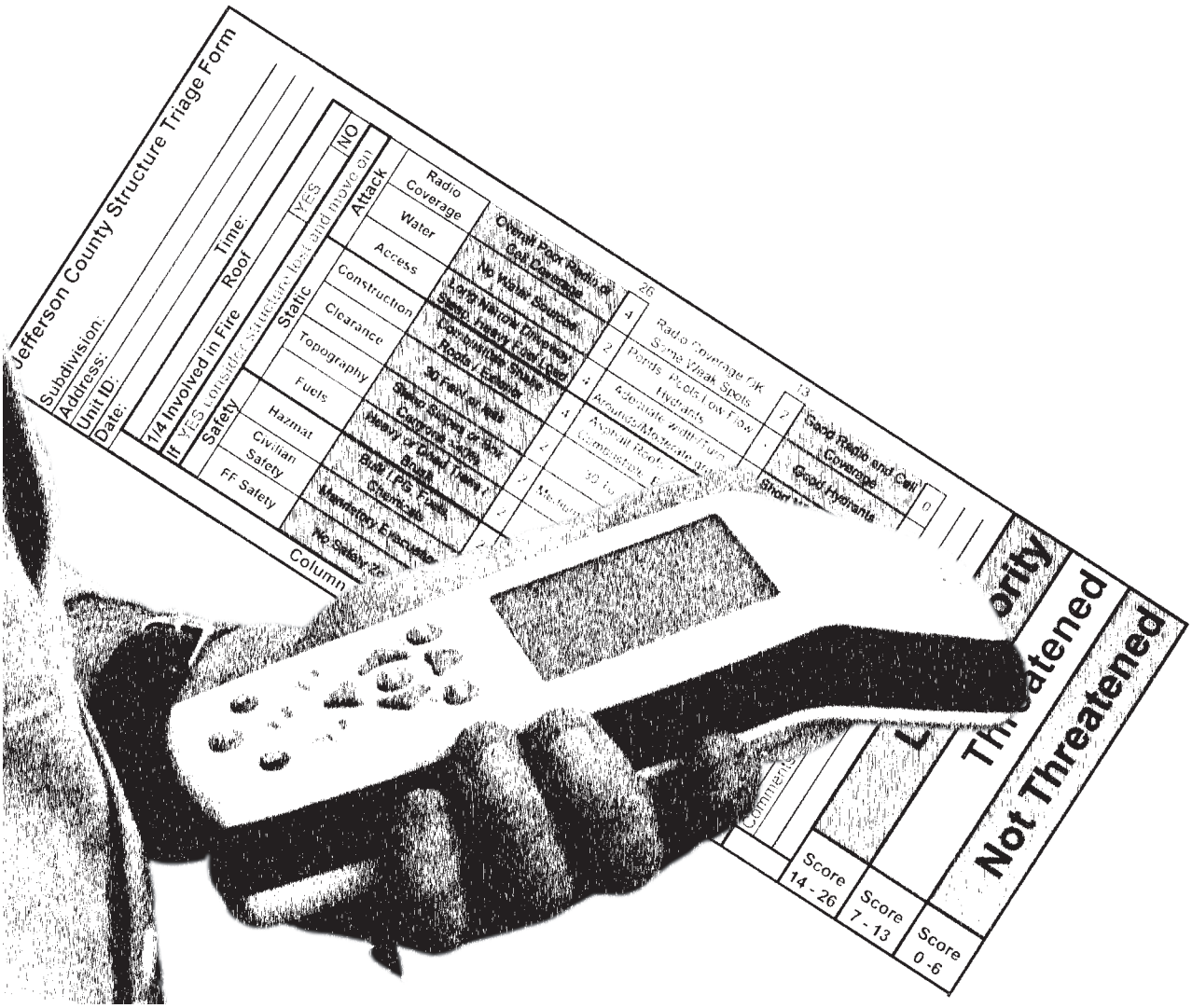
Fire Operations in the Wildland/Urban Interface

S-215



NFES 002440

Instructor Guide

June 2013

CERTIFICATION STATEMENT

on behalf of the

NATIONAL WILDFIRE COORDINATING GROUP

The following training material attains the standards prescribed for courses developed under the interagency curriculum established and coordinated by the National Wildfire Coordinating Group. The instruction is certified for interagency use and is known as:

Fire Operations in the Wildland/Urban Interface, S-215
Certified at Level I

This product is part of an established NWCG curriculum. It meets the requirements of the NWCG Curriculum Management Plan and has received a technical review and a professional edit.

NWCG Executive Board Chair

Date June 26, 2013

NWCG Training Branch Manager

Date June 25, 2013

NWCG OPERATIONS AND WORKFORCE DEVELOPMENT 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 www.nwcg.gov/pms/training/training.htm. If the hours are a minimum versus recommended, they will be stated as such.

Fire Operations in the Wildland/Urban Interface

S-215

Instructor Guide

June 2013

NFES 002440

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 http://www.nwcg.gov.

Previous editions: This product replaces NFES 2170, Fire Operations in the Wildland/Urban Interface, September 2003.

PREFACE

Fire Operations in the Wildland/Urban Interface, S-215, 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

Bob Narus – Boise District

USDI BUREAU OF LAND MANAGEMENT

Clay Howe – California Desert District

USDA FOREST SERVICE

Tom Smith – Black Hills National Forest

STATE OF SOUTH DAKOTA

Joe Lowe – South Dakota Division of Forestry

STATE OF FLORIDA

Gary Beauchamp – Florida Division of Forestry

NWCG TRAINING BRANCH

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

CONTENTS

APPENDIXES

The following appendixes are located on the Course Materials CD:

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 S-215, Fire Operations in the Wildland/Urban Interface, course requires 16–24 hours for presentation. This course is designed to meet the training needs of an Incident Commander Type 4 (ICT4) and all Strike Team Leader positions on an incident as outlined in the Interagency Incident Management System: Wildland Fire Qualification System Guide (PMS 310-1) and the position task book developed for the position.

The National Interagency 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/).

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:

Operate safely and effectively in a wildland/urban interface incident by using situation awareness, performing structure triage, using pre-planning tools, having a basic understanding of fire behavior, and using strategy and tactics unique to the wildland/urban interface environment.

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. Exercises and Other Pertinent Information

The instructors need to review the entire course well before the course begins because the exercises are meant to be customized to match local environment, if needed. The field exercise at the end of the course will require logistical preparation and planning.

C. Course Agenda

A sample agenda is on page 11. 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 CD contains the Instructor Guide, Student Workbook, and appendixes in bookmarked files in portable document format (PDF).

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 CD:

- 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 CD, 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 – Handouts

  This appendix contains materials to hand out to the students.

- Appendix D – Reference Materials

  This appendix contains student reference materials. The instructor can decide which reference materials to distribute to the students.

- Appendix E – 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 F – 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.

  The Online Course Evaluation Form also allows for feedback. Comments can also be submitted online at http://training.nwcg.gov by selecting the NWCG EVAL button in the upper right corner.

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

This course is designed to assist any emergency responders who will be planning for and making operational decisions during an interface incident. This course is for personnel desiring to be qualified as the following:

Incident Commander Type 4 (ICT4)
Task Force Leader (TFLD)
Strike Team Leader Crew (STCR)
Strike Team Leader Heavy Equipment (STEQ)
Strike Team Leader Engine (STEN)

VII. COURSE PREREQUISITES

None.

VIII. PRE-SELECTION ASSESSMENT AND PRE-COURSE WORK

None.

IX. 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. An sample course selection letter is on page 9.

X. 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.

XI. 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.

XII. 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.

XIII. STUDENT ASSESSMENT AND CERTIFICATION

To receive a certificate of completion for the course, students must obtain a score of 70% or higher on the student assessment method chosen.

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 Exam

The final exam consists of 30 questions and should be completed within 1 hour. At the cadre's discretion, the final exam may be open or closed book. The final exam and answer key are in Appendix E.

C. Optional Field Exercise

The Optional Field Exercise Suggestions are located in Unit 10, IR10-1.

Fire Operations in the Wildland/Urban Interface, S-215
Sample Course Selection Letter

To: *Student's Name*

From: *Course Coordinator's Name*

Subject: *Course Title, Course #*

Congratulations, you have been selected to attend *Course Title, Course #,* to be held at *(location)*. The course will begin promptly at *(time and date)* and end at *(time and date)*.

The primary emphasis of this course focuses on duties of *a/an Position* within the Incident Command System.

Please bring the following references to class:

- Unit Leader Position Task Book (initiated at the home unit), located at http://www.nwcg.gov/pms/pms.htm.
- Wildland Fire Incident Management Field Guide (PMS 410-1, NFES 0065), located at http://www.nwcg.gov/pms/pubs/pubs.htm.
- Incident Response Pocket Guide (PMS 461, NFES 1077), located at http://www.nwcg.gov/pms/pubs/pubs.htm.

If you wish to receive a certificate of completion for the course, please do not make travel arrangements to arrive after the scheduled start time or to depart before the scheduled course completion time.

In the event you cannot attend the course, please contact the course coordinator before the beginning of the class. This allows time for notifying students who may who may be on the waiting list to be contacted to fill the vacancy.

If you have any questions please contact the course coordinator, *Name, at phone number, or email address*.

Fire Operations in the Wildland/Urban Interface, S-215
Sample Agenda

Day 1

Unit 0 – Introduction ..... 1 hour

Unit 1 – Firefighter Safety in the Interface..... 2 hours

Unit 2 – Managing Human Factors in the Interface ..... 1.5 hours

Lunch

Unit 3 – Pre-Incident Planning ..... 1.5 hours

Unit 4 – Sizeup and Initial Strategy..... 1 hour

Cadre Meeting (Course Review)

Day 2

Unit 5 – Structure Triage ..... 2 hours

Unit 6 – Structure Protection Overview ..... 1 hour

Lunch

Unit 7 – Tactics in the Interface..... 2 hours

Unit 8 – Tactical Operations and Resource Use in the Interface ..... 1 hour

Cadre Meeting (Course Review)

Day 3

Unit 9 – Action Assessment, Plan Update, and After Action Review ..... 1 hour

Unit 10 – Final Evaluation ..... 1 hour

Lunch

Unit 10 – Optional Field Exercise ..... 4–8 hours

Cadre Meeting (Course Review/Field Exercise Preparation)

Cadre Meeting (Course Closeout)

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 0 – Introduction

Time 1 hour

Objectives

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. Define the "interface."
7. Compare and contrast differing agency policies in relation to interface incidents.

Strategy

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

Instructional Method(s)

- Informal lecture
- Classroom discussion
- Interactive group discussion

Instructional Aids

☐ Computer with LCD projector, presentation software, and screen
☐ Sign-in sheet
☐ Flip charts and markers

Exercise(s)

- Student Expectations for the Course
- Agency Policies for Structure Protection

Evaluation Method(s)

- None

Outline

I. Welcome and Introductions

II. Course Logistics

III. Course Overview

IV. Course Expectations

V. Course Reference Materials

VI. The “Interface” Defined

VII. Agency Policy

VIII. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 0 – Introduction

OUTLINE	AIDS & CUES
NWCG Mission Statement Slide.	Slide 0-1
Course and Unit Title Slide.	Slide 0-2
Present Unit Objectives.	Slide 0-3
I. WELCOME AND INTRODUCTIONS	Slide 0-4
Introduce course coordinator, instructors, and students. **Use any method desired for introductions.** **Have students provide the following information:** • Name and job title • Agency and home unit • ICS qualifications • Experience relative to operations in the interface, both positive and negative	

OUTLINE	AIDS & CUES
II. COURSE LOGISTICS	Slide 0-5
Discuss the following as appropriate: • Course agenda • Sign-in sheet • Housekeeping – Message and telephone location – Cell phone policy – Facility locations (restrooms, vending machines, drinking fountains, smoking areas, evacuation policy, etc.) – Local information (restaurants, local map, transportation) – Punctuality, meals, and breaks • Other concerns **Circulate the class registration form or a sign-in sheet for students to sign.**	

OUTLINE	AIDS & CUES
III. COURSE OVERVIEW	Slide 0-6
A. Course Objective At the successful completion of this course, students will be able to: Operate safely and effectively in a wildland/urban interface incident by using situation awareness, performing structure triage, using pre-planning tools, having a basic understanding of fire behavior, and using strategy and tactics unique to the wildland/urban interface environment.	
B. Instructional Methods 1. Facilitation and short lectures with PowerPoint presentations 2. Discussion 3. Exercises	
C. Student Assessment To successfully complete the course, students must: • Participate in all classroom and field discussions, exercises, and scenarios • Obtain a score of 70% or higher on the final exam to receive a certificate of completion for the course	Slide 0-7

OUTLINE	AIDS & CUES
D. Unit and Course Evaluation Forms Students are given the opportunity to complete a unit evaluation form following each unit and a Student Training Course Evaluation form at the end of the course.	
IV. COURSE EXPECTATIONS	Slide 0-8
A. Student Expectations	
EXERCISE: Student Expectations for the Course	
Purpose: Students develop a list of their expectations for the course.	
Time: 20 minutes	
Format: Divide students into small groups of three.	
Materials Needed: Flip charts and markers	
Instructions:	
1. Instruct groups to write their responses to the following question on a flip chart: • What are your expectations for this course? • Do you have any specific questions that you expect to be answered in this course?	
2. Have each group present their expectations to the class.	
3. Answer any questions.	

OUTLINE	AIDS & CUES
4. Post lists around the room and refer to them throughout or at the end of the course to ensure students' expectations were met. **End of Exercise.** B. Instructor Expectations Students will: • Exhibit mutual cooperation with the group. • Participate actively in all of the training exercises presented in the course. • Return to class at stated times. • Not leave the course with any unanswered questions.	
V. COURSE REFERENCE MATERIALS Below is a list of materials that may be referenced throughout the course: • Wildland Fire Incident Management Field Guide (PMS 410-1) • Incident Response Pocket Guide (PMS 461) • Interagency Incident Management System: Wildland Fire Qualification System Guide (PMS 310-1)	Slide 0-9

OUTLINE	AIDS & CUES
• Interagency Standards for Fire and Fire Aviation Operations (Red Book) • Student reference materials in Appendix D **Refer students to the student reference materials in Appendix D if they are being used in the course. Explain how the materials will be used.**	
VI. THE "INTERFACE" DEFINED The wildland/urban interface is any zone where human-made improvements intermix with wildland fuels. The wildland/urban interface will hereafter be referred to as the "interface" in this course. There are three different types of interfaces: • **Classic interface** is generally within a city or urban area, where structures abut wildland fuels. There is a clear line of demarcation between the structures and the wildland fuels along roads or back fences; however, wildland fuels continue into the developed area. Examples include open space, riparian zones, and wildlife corridors. Fire protection is normally provided by a local government fire department with the responsibility to protect the structure from both an interior fire and an encroaching wildland fire (unless the line of demarcation is also a jurisdictional boundary).	Slide 0-10

OUTLINE	AIDS & CUES
• **Mixed interface** is generally not in an urban environment but is where structures are scattered throughout a wildland area. There is no clear line of demarcation; the wildland fuels are continuous outside of and within the developed area. Generally the density of homes in this interface is less than in the classic interface. Fire protection is normally provided by fire protection districts.	Slide 0-11
• **Occluded interface** is generally where structures surround an island of wildland fuels (park, vacant lot, or open space). There is a clear line of demarcation between the structures and the wildland fuels. Fire protection is normally provided by a local government fire department.	Slide 0-12
Due to the growing number of homes and other structures in America's interface, it is very likely that firefighters with wildland responsibilities will find themselves in a role for which they may not be mentally prepared, adequately trained, or properly equipped. Wildland firefighters may be called on to protect threatened structures, and firefighters who are not primarily wildland responders may be called on to help suppress fires in wildland fuels that threaten structures. The trend throughout the country is for increased growth and development in the interface. Because there are more structures in the interface, multiple agencies are faced with more interface incidents. Thus, for the remainder of this course, we will to refer to responders as either Federal or non-Federal firefighters.	Slide 0-13

OUTLINE	AIDS & CUES
As with wildland fires, interface fires will also vary widely in complexity and may present unexpected situations for firefighters to manage. Situations such as having unexploded ordinance or hazardous materials within the fire perimeter or encountering hostile individuals may occur on any wildland incident. Although firefighters working in the interface may be exposed to similar situations, they also may be exposed to wide-scale evacuations, large multijurisdictional responses, or heavy media interest adding to the complexity of the incident. The most direct way to improve the safety of firefighters in the interface is to ***build in planning and preparation time before the interface incident occurs***. Time before the incident should be used to cross-train with cooperating agencies, develop pre-attack plans, create community awareness, create defensible space, and mentally prepare. Although interface fires can occur almost anywhere, and as natural fuels may differ across any landscape, one factor remains constant—no matter what the fuel type, there is always a risk to firefighters who suppress fires.	
VII. AGENCY POLICY Emergency responders are increasingly being dispatched to incidents or situations that may not fall within their primary responsibilities and training. It is important to remember that agency policy defines standard operating procedures and may limit firefighters' level of response.	Slide 0-14

OUTLINE	AIDS & CUES
EXERCISE: Agency Policies for Structure Protection Purpose: Students will compare and contrast agency policies regarding interface incidents. Time: 15 minutes Materials Needed: Flip charts and markers Exercise Preparation: Review agency policies as they relate to interface operations. Exercise Instructions: Divide students into small groups as instructor deems appropriate. Allow 5 minutes to discuss individual agency policies. Have the students present their discussion points. **End of Exercise.**	Slide 0-15
VIII. CONCLUSION Some closing thoughts to consider: Because wildfires know no geographical boundaries, firefighters will require an understanding of cooperating agencies' policies, procedures, capabilities, and contractual agreements. Remember that structure protection is still primarily wildland firefighting, and *structure firefighting* occurs when structure protection fails. Most importantly, regardless of the public's perception, policy dictates your scope of operations.	Slide 0-16

OUTLINE	AIDS & CUES
Some examples where firefighting policy and public perception differ include: • The public doesn't care about the color of your truck or uniform. They see you as a firefighter and expect you to fight any fire even if you're not trained in that type of firefighting and your policy prevents it. • The public pays taxes for fire protection, and there is an expectation that fire services will be provided. • The public isn't aware of what agency policy requires and prohibits, and firefighters must know and understand their agency policy, as well as cooperators' policies. • Resources may have limits on the types of operations they may perform.	
Review Unit Objectives. **Answer student's questions.**	Slide 0-17 Slide 0-18

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 1 – Firefighter Safety in the Interface

Time 2 hours

Objectives

1. Describe operating principles and unique safety concerns to firefighters in the interface.
2. Describe escape routes, temporary refuge areas, and safety zones as they apply to firefighting in the interface.

Strategy

Using a combination of lecture, discussion, and written reference materials, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture and discussion with PowerPoint presentation

Instructional Aids

- ☐ Flip charts
- ☐ Personal computer with LCD projector and presentation software
- ☐ Incident Response Pocket Guide (PMS 461, NFES 1077)

Exercise(s)

- None

Evaluation Method(s)

- None

Outline

I. Introduction

II. Individual Firefighter Safety in the Interface

III. Escape Routes, Safety Zones, and Temporary Refuge Areas in the Interface

IV. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 1 – Firefighter Safety in the Interface

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 1-1
Present Unit Objectives.	Slide 1-2

I. INTRODUCTION

Wildland fires may require some level of structure protection effort when structures are built within and/or adjacent to flammable vegetation types threatened by wildfire.

These interface incidents can vary widely in both complexity and frequency throughout our local, regional, and national areas of responsibility.

Interface fires may contain unique safety hazards within the fire environment that are not commonly encountered by both wildland and structure firefighters in their normal duties.

However, through planning, training, development of accurate situation awareness, and using risk management skills, interface fire hazards can be managed in the same way that hazards are managed in a purely wildland fire environment.

OUTLINE	AIDS & CUES
It is worth noting that the Standard Firefighting Orders were not written with the interface incident in mind. However, the orders are still applicable when used correctly to fit a specific incident.	
Interface operating principles:	Slide 1-3
Suppressing fires in the interface can be challenging because of the potential for increased complexity of the incident. Here are some general operating principles that should be considered to operate safely in the interface environment:	
• The first priority for all risk decisions is human survival, both of firefighters and the public.	
• Incident containment strategies must specifically address and integrate protection of defendable improved property and wildland values.	
• Direct protection of improved property is undertaken when it is safe to do so, when there is sufficient time and appropriate resources available, and when the action directly contributes to achieving the overall incident objectives.	
• The firefighter's decision to accept direction to engage in structure protection actions is based on the determination that the property is defendable and the risk to firefighters can be safely mitigated under the current or potential fire behavior.	Slide 1-4

OUTLINE	AIDS & CUES
• A decision to delay or withdraw from structure protection operations is the appropriate course of action when made in consideration of firefighter safety, current or potential fire behavior, or defensibility of the structure or group of structures. • Every firefighter should be aware of the factors that affect their judgment and decisionmaking process. Some of the factors that may cloud your judgment are: – Having an inaccurate perception of your own knowledge, skills, and abilities – The threat to life or structures, unexpected fire behavior, availability of resources, social and political pressures, and mission focus – Personal distractions such as home, work, health, and fatigue • An individual's ability to assimilate all available factors affecting situation awareness is limited in a dynamic interface environment. Every firefighter is responsible for understanding and recognizing these limitations, and applying their experience, training, and personal judgment to observe, orient, decide, and act in preparation for the "worst-case" scenario.	

OUTLINE	AIDS & CUES
• It is the responsibility of every firefighter to participate in the flow of information among supervisors, subordinates, and peers. Clear and concise communications is essential to overcoming limitations in situation awareness.	
II. INDIVIDUAL FIREFIGHTER SAFETY IN THE INTERFACE The first priority for all risk decisions is human survival, both of firefighters and the public; values at risk can be replaced, individual human life cannot.	Slide 1-5
• Consider structures as, "Just another fuel type." Each wildland fuel model possesses unique characteristics contributing to its flammability, and thus each individual structure also possesses unique characteristics to determine its flammability.	
• Safety cannot be compromised to meet tactical objectives.	
• Emphasize entrapment avoidance during interface operations. "Learn to leave" and "Leave to live" must replace the history of melted light bars, blistered paint, and "protect structures at all cost" mentality.	

OUTLINE	AIDS & CUES
A cultural change must exist in interface fire operations exemplifying that firefighters can be both aggressive in suppressing the fire while maintaining their safety as in any wildland fire.	Slide 1-6
• The opinion that interface fires are generally more hazardous and dangerous than wildland fires has no basis and is not supported by historical firefighter injury and fatality statistics.	
• As in a wildland fire, extreme fire behavior in interface situations can create multiple ignitions of structures, creating extreme radiant heat, and compromise escape routes.	
• Wildland and interface fires both require accurate situation awareness and continual sizeup of potential safety hazards in determining use of defensive vs. offensive tactics.	
Appropriate protective equipment is required while working directly on the fireline and also while performing structure protection on interface fires.	
A. Situation Awareness in the Interface	Slide 1-7
One's ability to assimilate all available factors affecting their situation awareness may be limited in an emerging interface environment due to a variety of factors.	

OUTLINE	AIDS & CUES
Every firefighter is responsible for understanding and recognizing these limitations and applying their experience, planning, training, and personal judgment to observe, orient, decide, and act in preparation for the worst-case scenario. Three of the key elements for developing and maintaining accurate situation awareness are:	Slide 1-8
• Use the first three Fire Orders: – Keep informed on fire weather conditions and forecasts. – Know what your fire is doing at all times. – Base all actions on current and expected behavior of the fire.	Slide 1-9
• Use Look Up, Look Down, Look Around Indicators. • Use the Risk Management Process found in the IRPG.	
B. Fire Behavior Prediction Specific to structure protection operations, one must use careful consideration of potential fire behavior for each structure. Some items to consider include: • topography (location of structure on the slope, slope steepness, and/or aspect)	Slide 1-10

OUTLINE	AIDS & CUES
• fuel type and loading (light vs. heavy fuels defensible space, and yard accumulation) • composition of the structure itself (flammable roof, access points for embers, and continuity between wildland fuels) Most interface entrapments occur at midslope locations. This happens because firefighters get focused on what they are doing and allow their situation awareness to lapse. Therefore, it is important that each firefighter frequently update their fire behavior situation awareness.	
C. Fire Shelters in Vehicles Every firefighter should have a fire shelter while doing perimeter control on an interface fire, as in any wildland fire suppression activity. Also, if you are traveling to or at a wildland or interface incident, your fire shelter should be readily available inside your vehicle for use as a last resort. Fire shelters have been successfully deployed in vehicles. If you need to take temporary refuge in your vehicle: • Park in an area void of vegetation, and use barriers or fire out around vehicle, if possible.	Slide 1-11

OUTLINE	AIDS & CUES
• Avoid parking in areas that will focus or concentrate heat (e.g., saddles, draws, canyons, heavy fuels, etc.). • Open the shelter and hold it against windows and the windshield and/or cover up the floor, if possible; when it is safe to exit, take your shelter with you and move to a safer location or out of the area. • Don't leave fire shelters in inaccessible storage cabinets, as immediate access may be needed. • Keep extra shelters in the cab of your vehicle.	
D. Driver Safety Awareness in the Interface Driving accidents are a leading cause of injuries and fatalities to firefighters. Interface fires may increase the risk of vehicle accidents due to: • Congested roads • Vehicles and animals in the road • Poor visibility • Roadway debris • Heavy fuel loading adjacent to the roadway • Downed utility lines	Slide 1-12

OUTLINE	AIDS & CUES

- Poor access and narrow one-way roads

Some actions you can take to increase safety while in a vehicle on an interface incident:

1. If you can't see what is ahead, STOP! Dense ground-level smoke and windblown dust or ash will reduce visibility on the road to zero at times.

2. Send someone ahead on foot to scout road conditions before committing your vehicle to a situation that may be dangerous or difficult to escape from. Make sure the scout has communications and full PPE and carries flashlights or flares for visibility.

3. Use headlights, light bars, or other emergency warning devices when moving or stationary. Don't shut off the engine while the emergency warning devices, engine work lights, and radio are still on to preserve the battery.

4. Do not bunch up your vehicles. Maintain enough space between equipment to allow for backing up and turnarounds. The danger here is that vehicles at the front of the group may have no escape route if the situation requires quickly returning the way you came.

OUTLINE	AIDS & CUES
5. Maintain awareness of terrain features that will either affect fire potential or your ability to travel on the road. In-turns are often located in chutes and draws where increased fire intensity may be encountered. Out-turns are usually across ridgelines and are safer places to be positioned.	
6. Bridges and substandard roads may be encountered in interface fires. If the bridge is not posted with load limits, use extreme caution. Make sure you know the gross vehicle weight of your apparatus fully loaded with personnel, equipment, and water.	
7. Be wary of underground culverts or undermined roads (roads that have eroded underneath) that may collapse under the weight of the vehicle.	
8. Obtain good road maps. If possible, have someone with you who is familiar with the area. Verify all information and instructions before committing to an operational decision.	

OUTLINE	AIDS & CUES
E. Fire Apparatus Safety in the Interface 1. Positioning, parking, and operations • Back your vehicle into working position headed toward your escape route, and leave engine running with emergency lights on. • Avoid blocking escape routes for other vehicles and equipment. • Avoid parking next to heavy fuel loads, woodpiles, or other flammable debris. • Park your vehicle on green lawns, paved or gravel surfaces, or other non-flammable areas, if possible. 2. What to do if you are in an engine • Never pass up opportunities to fill your tank; use supplemental fill lines from available water sources when in defensive position. • Keep flammable items in the bed of your vehicle covered or in compartments, and keep the windows closed.	Slide 1-13

OUTLINE	AIDS & CUES
• Maintain at least 100 gallons of water in your tank with at least one length of charged 1½-inch line for protection of your engine and crew.	Slide 1-14
F. Power Line Safety	Slide 1-15
Refer students to the Power Line Safety section in the IRPG.	
1. Power lines, transformers, and electrical service boxes	
• Never assume that the power circuit is off; treat all power lines as energized.	
• Never apply water directly to power lines, poles, or electrical service boxes. If water is needed in proximity to electrical equipment, use a nozzle with fog spray capability and not less than 100 pounds per square inch (psi) nozzle pressure.	
• Use caution when crossing barbed wire or opening barbed wire and metal gates; the possibility of live power lines on the metal wire creates an electrical shock hazard.	

OUTLINE	AIDS & CUES
• Although being phased out, some transformers contain polychlorinated biphenyl (PCB), a probable carcinogen. Treat all transformers with caution. 2. Power line safety • If there is a downed power line on your vehicle, stay in the vehicle until a power company employee arrives. If your vehicle is on fire or fire is near, jump clear, but don't hang on to the vehicle. Avoid any contact with the power line. • Smoke, water, and retardant are all good conductors of electricity and can cause power-line-to-ground arcing; direct attack activities must be abandoned within 100 feet of transmission lines. • Don't use power line rights-of-way as a jump zone, cargo drop spot, staging area, or safety zone. • Don't drive with long antennas under power lines. • Don't stand near power lines during retardant or bucket drops.	

OUTLINE	AIDS & CUES
• Don't park under power lines. • Don't apply straight stream to power lines.	
G. Hazardous Materials Awareness and Safety	Slide 1-16
Refer students to the Hazardous Materials section in the IRPG.	
Interface considerations: • Farms and ranches in rural settings often have their own fuel and chemical storage facilities. • Storage sheds, garages, and shipping containers on the property may contain hazardous materials that emit toxic gases or can potentially explode. • Remain a safe distance from structures that are fully involved, and out of the path of smoke emissions that could contain toxic gases. Remember, exposure to hazardous materials may not immediately affect you, but exposure can potentially have long-term effects on your health.	

OUTLINE	AIDS & CUES

- Interface fires may move into not only residential areas, but also industrial areas and gas, oil, and other energy production sites. These sites may contain a risk of hazardous material exposure.

Although hazardous materials may be encountered on any fire, chances are higher that you will encounter them on an interface incident. Sources of hazardous materials, indicators, and an appropriate response include:

1. Sources of potential hazardous material

    a. Flammable storage tanks of liquid petroleum gas, gasoline, and diesel fuel

    b. Industrial and agricultural chemicals

    c. Homeowner chemicals

    d. Explosives

    e. Combustible metals (e.g., magnesium)

The instructor should discuss local hazardous materials that may be encountered in response area.

OUTLINE	AIDS & CUES
2. Smoke-color indicators of hazardous materials combustion a. Watch for smoke that is unusual in density or volume. Extra heavy smoke from a small area means something other than vegetation is burning. b. Look for smoke that has an unusual color. • Black smoke may indicate a burning hydrocarbon such as fuel oil, burning tires, or creosote-treated rail ties or telephone poles. • Colored smoke (red, green, or yellow) are indicators of toxic materials such as acids, corrosives, or poisons. • Invisible vapors can extend well beyond the limit of visible smoke and can be inhaled or absorbed through the skin.	Slide 1-17

OUTLINE	AIDS & CUES

- Watch for hazardous materials placards.

If firefighters or the public exhibit symptoms such as convulsions, disorientation, and/or dizziness, they may have been exposed to a hazardous substance. Dead birds, pets, or livestock can also indicate the presence of toxic gas fumes in the vicinity.

3. If you suspect a hazardous material incident in your area:

   - Evacuate all personnel from the area and deny access to others.
   - Report the location and other pertinent information to your supervisor.
   - Request hazardous material specialists and equipment.
   - Don't evacuate downwind or downhill if possible.
   - A general guideline is that if you can't cover the incident scene with your outstretched thumbnail, you're too close.

OUTLINE	AIDS & CUES
III. ESCAPE ROUTES, SAFETY ZONES, AND TEMPORARY REFUGE AREAS IN THE INTERFACE	Slide 1-18
Refer students to the safety zone considerations in the Incident Response Pocket Guide (IRPG), and remind them that the safety zone considerations in the IRPG are not intended for structure protection.	
A. Escape Routes and Safety Zones in the Interface	
By definition, a safety zone should be a preplanned area of sufficient size and suitable location that is expected to protect fire personnel from known hazards without using fire shelters. To calculate the sufficient size of a safety zone in a purely wildland environment, the expected maximum flame height should be multiplied by four, plus additional area per firefighter or piece of equipment. However, safety zones as calculated in the Incident Response Pocket Guide (IRPG) or the Wildland Fire Incident Management Field Guide (PMS 410-1) are not intended for the interface or structure protection.	
Many variables in the interface, such as fuel discontinuity and presence of non-burnable materials will alter fire behavior compared to a homogenous fuel bed as seen in a purely wildland fire situation.	

OUTLINE	AIDS & CUES

Fire behavior prediction, safety zone determination, and structure triage are interrelated. Size and adequacy of a safety zone MUST be based on current and expected fire behavior. In many instances, safety zones (by definition) may not be onsite where the structure is being defended.

The first step in determining the adequacy of a safety zone is to make a fire behavior prediction based on:

- intensity and rate of spread,
- time needed to prepare a safety zone if one is not present, and
- defensibility of the structure

Firefighters must identify a safety zone in close proximity to the structure being defended. An identified escape route must exist. If fire behavior dictates, you should leave early enough so that you may use your escape route before it is compromised to reach your safety zone before the fire does.

In many instances, in order to reach a safe area, firefighters need to just drive away, putting time and distance between themselves and the fire.

OUTLINE	AIDS & CUES
If firefighters cannot safely engage in structure protection without the presence of a safety zone and escape route nearby, they should change tactics or move on to another structure. **Do not** commit to stay and protect a structure unless a safety zone for firefighters and equipment has been identified at the structure during sizeup and triage. Move to the nearest safety zone, let the fire front pass, and return as soon as conditions allow. Avoid escape routes that will be easily compromised.	
B. Temporary Refuge Areas in the Interface	Slide 1-19
Refer students to the Last Resort Survival section in the IRPG.	
Temporary refuge areas (TRAs) are locations where firefighters can immediately take short-term refuge from an approaching fire front. **TRAs are to be used as a last resort survival option.** These areas may provide short-term protection to diminish radiant heat and smoke inhalation resulting in injuries when an escape route is compromised and a safety zone cannot be accessed. TRAs, like deployment zones, are not a replacement for a safety zone. However, many firefighters have successfully avoided or minimized injury by taking temporary refuge as the flaming front passes.	

OUTLINE	AIDS & CUES

Nonetheless, these locations may quickly lose their ability to protect the firefighter from an adverse environment. It is up to the firefighter to maintain their situation awareness and constantly evaluate the conditions as they change.

Some TRAs may include the inside of a structure or vehicle, or on a large lawn, parking area, or even the lee side of a building if these areas provide more protection than surrounding areas.

Although most TRAs are fixed, the placement of fire apparatus at the scene is critical. It must be positioned in a safe location so that it may be easily accessed by personnel with an unobstructed access to the escape route.

The most important point to remember is these areas only provide temporary refuge, not an area of safety like a safety zone. For whatever reason an escape route may be compromised, the TRAs may provide just enough protection to reach a true safety zone.

Examples of temporary refuge areas:

1. Take refuge in a structure.

   A structure will provide excellent short-term protection from the radiant heat. Use any means necessary to get in the structure if your life is in danger.

OUTLINE	AIDS & CUES

Once the fire front passes, you can go back outside and potentially put out any fires that have ignited on the structure.

Agency guidelines must be considered when deciding to take refuge in a structure.

When using a structure as a refuge, take a charged hose line inside for use in the event the fire enters the interior.

If you can still access your vehicle, a spotlight should be directed vertically upwards in the event additional resources are requested. This maneuver has proven effective in rapidly locating personnel requiring help.

A fireline supervisor should be notified when refuge is taken in a structure, an engine, a safety zone, or a fire shelter.

2. Take refuge in your vehicle.

There are no NWCG guidelines for Federal firefighters on taking refuge in a vehicle. For Non-Federal firefighters, be sure to know if a policy exists. If no agency policy exists, it's up to individual judgment.

OUTLINE	AIDS & CUES
Some considerations are: • If the vehicle is in a good location, stay there! • Burn out around the vehicle if time allows. • A spotlight should be directed upwards or headlights or light bars left on to assist in locating the vehicle. • Keep the cab closed, and deploy fire shelters inside. • If available, place a spare self-contained breathing apparatus cylinder(s) on the floor of the cab with the valve slightly open. • Notify your fireline supervisor that you are taking refuge in the vehicle. • Have a plan, and be ready to vacate the vehicle should it become involved.	

OUTLINE	AIDS & CUES
IV. CONCLUSION Values at risk can be replaced, individual human life cannot. Therefore, firefighter and public safety always come first. Remember that the interface: • Is easily defined and identified • Is no more dangerous than a non-interface fire, but may have unique hazards or dangers in the area (e.g., unexploded ordinance or HAZMAT) • Requires acute observation of the fire environment • Requires time to create an accurate and correct evaluation of fire environment • Requires unique tactics and strategies that are defined by the amount of time available to plan, practice, implement, and react **Firefighters need to employ defensive tactics when risk to firefighters cannot be mitigated. Firefighters will use offensive tactics and defend structures ONLY when it is SAFE to do so.** Homes can be rebuilt, just like a forest regenerates after the fire. Firefighters at all levels are responsible to make risk management decisions appropriate to their level of individual knowledge, experience, training, and situation awareness.	Slide 1-20

OUTLINE	AIDS & CUES
Do not allow your emotions of the moment to cloud your judgment and resist any feeling of the need to plunge in. Take the time necessary to plan, train, and evaluate the fire environment and build accurate situation awareness in the interface. Managing wildfire and the interface needs to start long before the fire season begins and should involve all responsible parties.	
Review Unit Objectives.	Slide 1-21

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 2 – Managing Human Factors in the Interface

Time 1.5 hours

Objectives

1. Discuss how preparing for and responding to interface fires is a shared responsibility as outlined in the Federal Wildland Fire Policy.
2. Describe some human factors encountered in the interface that affect critical decisionmaking for firefighter and public safety.
3. Discuss the value of the Incident Command System (ICS) and mutual aid situations as they apply to an interface incident.

Strategy

Using a combination of lecture, discussion, exercises and written reference materials, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture, discussion, and exercises with PowerPoint presentation

Instructional Aids

☐ Flip charts

☐ Personal computer with LCD projector and presentation software

Exercise(s)

- Roles and Responsibilities in the Interface
- Challenges to Decisionmaking in the Interface

Evaluation Method(s)

- None

Outline

I. Introduction

II. Preparing for and Responding to Interface Fires Is a Shared Responsibility

III. Impaired Decisionmaking in the Interface

IV. Managing Public Interactions

V. The Incident Command System (ICS) in the Interface

VI. Mutual Aid Situations

VII. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 2 – Managing Human Factors in the Interface

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 2-1
Present Unit Objectives.	Slide 2-2
Allow students time to read the unit introduction.	
I. INTRODUCTION	Slide 2-3
The operational roles of Federal agencies as partners in the interface are wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical assistance. Structure fire suppression is the responsibility of non-Federal agencies such as, tribal, state or, local governments. Some Federal agencies may assist with exterior structure protection activities under formal Fire Protection Agreements that specify the mutual responsibilities of the partners, including funding.	
The intent of any agency is to prevent the movement of wildfires into the interface from wildlands or out of the interface into the wildlands. This will be accomplished through operations developed through agreements with defined roles and responsibilities based on protection responsibilities.	

OUTLINE	AIDS & CUES
However, if these combined efforts fail to prevent a wildfire from entering the interface, the firefighter must be prepared and expect to encounter a wide range of human factors, both internally and externally, from many sources. Developing awareness and managing these human factors is an individual skill that involves many complex variables but is critical for the firefighter to operate safely and efficiently in a high-stress, low-tolerance-for-error environment as seen in the interface.	
II. PREPARING FOR AND RESPONDING TO INTERFACE FIRES IS A SHARED RESPONSIBILITY	Slide 2-4
EXERCISE: Roles and Responsibilities in the Interface Purpose: Students will discuss the different roles and responsibilities of four groups sharing responsibility for interface fire preparation and protection. Time: 15–20 minutes Format: Small-group discussion Materials Needed: Flip charts or dry-erase boards with markers Exercise Preparation: Review the following list, and add any unique localized issues, if necessary. Break class up into small groups based on class size, if necessary.	

OUTLINE	AIDS & CUES

Exercise Instructions:

This exercise can be performed in small groups or as a class discussion.

Have students tell the class how they perceive different roles and responsibilities of the following groups sharing responsibility in the interface:

- Government
- Landowners and homeowners
- Firefighting agencies (local, state, and Federal)
- Firefighters

After the students have made their presentations, discuss some of the general roles and responsibilities for groups and individuals pertaining to the interface included below:

1. Government's (Federal, state, and local) responsibility

    - Manage development, planning, law enforcement, and building codes as related to wildfire.
    - Code creation and enforcement.
    - Foster cooperation among different agencies within the government (law enforcement, fire, health, etc.).

2. Landowners' and homeowners' responsibilities

    - Maintain defensible space.
      Reduce other hazards.
    - Prevent starting fires on their property.
    - Obey planning and building ordinances.
    - Construct or remodel homes using fire resistant construction materials.

OUTLINE	AIDS & CUES
3. Firefighting agencies' responsibilities • Firefighter safety. • Prepare mutual aid agreements. • Do pre-incident planning (i.e. pre-attack plans or triage). • Conduct specialized training and drills. • Enhance interagency cooperation. • Provide communications that function between both agency lines and public contacts. 4. Firefighters' responsibilities The fire suppression forces are ultimately responsible for their own safety and the safety of others on the fireline. Recognize that interface suppression may present unique emotions for all involved, which may add a level of complexity and potentially unpredictable dimension to your fire environment and decisionmaking. **End of Exercise.** III. IMPAIRED DECISIONMAKING IN THE INTERFACE The varieties of human factors you may encounter during an interface incident are complex, yet may be familiar. Some examples are: • Distraught homeowners struggling with the potential loss of their home and possessions or who have an antiauthority attitude.	Slide 2-5

OUTLINE	AIDS & CUES
• Business owners who are negatively impacted by the fire's effects (e.g., loss of customers, loss of resources, or loss of the business itself). • Individuals may forego self-preservation for a variety of reasons. An example of this occurred during the evacuation for Hurricane Katrina. Many people chose to forego evacuation and stay in their homes knowing they couldn't take their pets with them. • Firefighters and their own emotions (i.e., human attachment, impulsiveness, or oversized ego). Especially with a local connection, firefighters may feel overly compelled to protect homes of friends, family, or their community. • Firefighters may become locked into a course of action and be reluctant to leave a structure because of ownership and attachment created when significant efforts were made to defend a structure. • An unconscious temptation to put yourself and others at risk to save a person's home because of oversized ego, vanity, or sense of invulnerability. • Be aware and watch for transfer of risk in the interface. This can occur between any interested party and firefighters or between any responding resources, especially between ground and aerial firefighting resources (e.g., defending	

OUTLINE	AIDS & CUES
an indefensible structure, continuing ineffective aerial delivery of retardant, or using retardant without ground support).	
EXERCISE: Challenges to Decisionmaking in the Interface	Slide 2-6 through Slide 2-11
Introduction: On July 8, 2007, at about 0020 two Black Hills National Forest firefighters assigned to the Alabaugh Canyon Fire were entrapped by the fire and deployed a single fire shelter. At the time of the accident, the firefighters were conducting burnout operations around a residence in the wildland urban interface. The two firefighters sustained a range of superficial and significant burns due to a sudden, intense crown fire near their position as they were deploying the fire shelter. The Alabaugh Canyon Fire was located 5 miles south of Hot Springs, Fall River County, in southwest South Dakota.	
This brief exercise uses video excerpts discussing some challenges to decisionmaking that occurred during the Alabaugh Canyon fire.	
Purpose: Students will watch excerpts from the discussion on the Alabaugh fire and write down some of the challenges to decisionmaking they observe.	
Time: 15–20 minutes	
Format: Have students work individually or in small groups.	
Materials Needed: • PowerPoint presentation on Slides 2-6 through 2-11 • Flip charts or white board with markers.	

OUTLINE	AIDS & CUES
Exercise Preparation: Review exercise and add any unique localized issues, if necessary. Break up class into small groups, if necessary. Exercise Instructions: Play video segments embedded in the PowerPoint presentation, and ask students to present their findings to the class. As a class, talk about the following discussion points after students' presentations. Some noteworthy comments: • A house is a house, until it's your house. • The houses belong to friends and neighbors. • Too much radio traffic resulted in loss of communication. • The other local responding agencies questioned authority of the operations or division supervisors, which resulted in deterioration of command and control. • Human attachment and target fixation resulting in a reluctance to leave structures and locking into a course of action and ownership and emotional attachment.	

OUTLINE	AIDS & CUES
Some additional conditions or situations that may impair or challenge your decisionmaking process: • The public and firefighting community expects and tolerates firefighters accepting a notably higher level of risk to protect structures than when they are fighting wildfires without structures. • Interaction with the homeowner may sway your decision even though the homeowner didn't take the time to do any preparation. **What other factors may impair your decisionmaking in the interface?** **End of Exercise.**	Slide 2-12
IV. MANAGING PUBLIC INTERACTIONS Seldom will the need for effective public relations be greater than during and after an interface fire. Personnel involved on an interface incident must be sensitive to the situation regarding property owner or resident losses. During an incident, be prepared for a multitude of questions, some of which you won't be able to answer. Maintain your professional attitude, and only answer questions for which you have accurate answers. Avoid speculation and any unsubstantiated fact. If you don't have an answer, let the person know that, and either see if you can find the answer or direct them to someone who can answer the question. Anticipate media interest with any interface incident.	Slide 2-13 Slide 2-14

OUTLINE	AIDS & CUES
A. If needed and available, request a public information officer or a member of the incident information officer's staff as soon as possible. • Follow the agency and/or incident guidelines regarding the release of information. • Those in leadership positions must be prepared to act as a buffer between the public and their crews who are trying to do their job.	
Discuss media interviews in the White – Other References section of the Incident Response Pocket Guide.	
V. THE INCIDENT COMMAND SYSTEM (ICS) IN THE INTERFACE	Slide 2-15
A. Managing Multiagency and Multijurisdictional Interface Fires	
1. ICS was originally developed more than 40 years ago in California to improve response to interface fires (FIRESCOPE). ICS continues to evolve with the changing needs of its users (National Incident Management System [NIMS]).	

OUTLINE	AIDS & CUES
2. ICS clearly defines the responsibility of an Incident Commander and provides a mechanism to define responsibilities of responders. On multijurisdictional fires, the goal of the incident command system is unified command. 3. ICS facilitates the organization to support incident needs as incidents expand and contract. 4. ICS provides common terminology for incident management. B. Managing Complex Interface Fires Interface fires may be complex and require an appropriate incident command system organization to manage them. It is important that your ICS organization, regardless of size, is able to meet the needs and stay ahead of a rapidly escalating event. **Depending on class composition and skill level, the instructor may want to discuss incident complexity and escalation (Incident Commander Type 5 [ICT5] to Incident Commander Type 1 [ICT1]).** VI. MUTUAL AID SITUATIONS Mutual aid is an essential tool for today's fire service. No single agency can "do it alone" when facing a major interface incident.	Slide 2-16

OUTLINE	AIDS & CUES

Faced with decreasing resources, ever expanding urban growth into traditional wildland areas, and a demand for increased fire protection, local agencies must turn to their neighbors for assistance.

In recent years, we have witnessed a greater number of situations where neighbor helps neighbor, wildland firefighters help structure firefighters, structure engines assist on wildfires, and everybody works together on a structure.

Keep in mind that, even though we are all working toward a common goal, your agency policies still apply, which will affect the tactics and strategies you are able to implement.

Although we can't predict how events will unfold in any interface incident, having an agreement in place ahead of time is a valuable tool to reduce confusion during the early stages of a mutual aid incident. At a minimum, the agreement should include contact information, unified command, common frequencies, areas of responsibility, and some basic understanding of capabilities and operating procedures for each responding agency.

The instructor may ask the class for other items that may be of value in a mutual aid agreement.

The time developing or reviewing an existing mutual aid agreement must be invested before the interface incident, when time is ample and responders can meet, discuss, and ensure all components are understood and agreed upon.

OUTLINE	AIDS & CUES
The benefits of having a comprehensive and current mutual aid agreement in place before an interface incident are almost immeasurable. The increase in efficiency of responders and mitigation of confusion during an emerging interface incident will be immediately evident with a plan in place, thus increasing the potential of a successful outcome.	
The instructor may want to facilitate a discussion on the specific benefits of having a mutual aid agreement in place (e.g., communications, areas of responsibility, capabilities of responders, etc.).	
VII. CONCLUSION	Slide 2-17
Coordinated efforts among government, homeowners, firefighting agencies, and firefighters before the fire occurs are essential to ensure firefighter and civilian safety during these events.	
After the fire starts, firefighting efforts must be performed within the context of standard operating procedures that mitigate risk to those performing their duties in the interface fire environment.	
Fires in the interface may cause extreme emotional and physical stress to the public and emergency responders.	

OUTLINE	AIDS & CUES
It is important to know yourself, including: • Understanding how you operate • Recognizing when your decisions are impaired • Knowing how to mitigate these errors • Knowing when to ask for help When a multijurisdictional incident has brought wildland and structure firefighting forces together with public safety agencies, the importance of using ICS and mutual aid agreements is critical. Using these tools will contribute to safer, efficient, and effective operations. ICS and tools such as mutual aid agreements also help establish a safer work environment for responding resources by minimizing confusion, establishing a standardized leadership structure, and using established radio frequencies, among other predetermined items. **It is not possible to completely prevent human error and impaired decisions from affecting our lives, regardless of the source.** **However, we can be honest with ourselves and be aware of our mental condition, maintain our situation awareness, plan ahead, and follow our procedures and policies.** **Most importantly, involve all responsible parties from the beginning so fewer costly errors occur during the incident.**	

OUTLINE	AIDS & CUES
Consider asking the class: What will you and your agency need to do to effectively manage human factors on interface fires? **Post answers in the classroom for discussion throughout the course.**	
Review Unit Objectives.	Slide 2-18

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 3 – Pre-Incident Planning

Time 1.5 hours

Objectives

1. Identify three resources for pre-incident planning.
2. List items to consider in pre-incident planning.
3. Describe some of the factors to be considered with the public before an interface incident occurs.

Strategy

Using a combination of lecture and written reference materials, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture and discussion with PowerPoint presentation

Instructional Aids

☐ Flip charts

☐ Personal computer with LCD projector and presentation software

Exercise(s)

- None

Evaluation Method(s)

- None

Outline

I. Introduction

II. Pre-Incident Planning Sources

III. Wildfire Hazards Assessment Technology

IV. Pre-Incident Planning Items of Importance

V. Public Interactions

VI. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 3 – Pre-Incident Planning

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 3-1
Present Unit Objectives.	Slide 3-2
I. INTRODUCTION	Slide 3-3
Firefighters may respond to a local interface fire, where familiarity contributes to an existing high level of situation awareness. However, firefighters often travel to an interface fire outside of the home unit in any number of different geographical areas that are very different in fuel type, topography, and agency administration. In either instance, any pre-incident planning developed en route or by obtaining a pre-incident planning package created by local personnel will help develop situation awareness for each unique incident. Any pre-planning you do or pre-planning package you obtain may also be useful in developing strategy and tactics or incident objectives en route. This unit will introduce some of the tools available for pre-incident planning.	

OUTLINE	AIDS & CUES

As with response to any incident away from the home unit, gathering any local information before arriving onscene will assist in preparing for the assignment.

By seeking out local maps, knowledgeable individuals, dispatch personnel, or any other sources before an in-briefing will increase knowledge about an unfamiliar area.

Many formal and informal methods of pre-incident planning exist, and all of them can be useful. Many areas have formal pre-attack plans that were created to assess the risk and to implement a planned wildfire response.

Much of the pre-incident planning occurs before fire season, when there is no time pressure. This enables a comprehensive evaluation of the wildfire threat to the community.

Many communities involve multiple groups in the planning process, (e.g., neighborhoods boarded by both state and Federal lands or a neighborhood association served by a local fire department).

These plans can also vary in their intent, detail, and the quality of information they contain. However, it is always worthwhile to attempt to determine the accuracy and age of each pre-attack plan before relying on it.

If no formal pre-planning has been completed for a given area, responders should at least do informal assessments of their response area to determine likely courses of action in an interface event and to identify potential safety hazards likely to be encountered.

OUTLINE	AIDS & CUES
This is also a good time to begin the structure triage process and possibly interact with homeowners, which we will discuss later in the course.	
II. PRE-INCIDENT PLANNING SOURCES	Slide 3-4
In a perfect situation, all interface areas should be pre-planned to provide an overview of the possible actions, hazards, resources, etc., that are beneficial during an incident. These plans should be jointly prepared by all agencies potentially involved.	
Different agencies may have different names for these plans (e.g., Pre-Attack Plans, Community Wildfire Protection Plan, Pre-Planned Dispatch, Structure Protection Plan, National Fire Management Analysis Planning, etc.).	
Refer students to the pre-attack plan example in Appendix D – Reference Materials, and briefly discuss. An option is to hand out and discuss examples of other pre-incident or pre-attack planning documents.	
Initial attack Incident Commanders (ICs) are advised to obtain these plans and be knowledgeable of their content and accuracy.	
ICs should also learn any environmental restrictions concerning threatened and endangered species, cultural resources, restrictions on firefighting resource use, minimum impact suppression tactics (MIST), etc.	

OUTLINE	AIDS & CUES
Consider asking the class for examples of any restrictions to suppression operations in their areas. **List on a flip chart if desired.**	
A. Firewise Communities/USA Firewise Communities/USA (Firewise) is a unique opportunity available to America's fire-prone communities. Its goal is to encourage and acknowledge action that minimizes home loss to wildfire. The Firewise activities are sponsored by the National Wildland/Urban Interface Fire Program. Firewise publishes numerous educational materials, shares these publications and much more on its web site (www.firewise.org), and operates the Firewise effort.	Slide 3-5
The instructor may expand on this topic. For example, ask if students have any Firewise-recognized communities in their jurisdiction.	
B. Community Wildfire Protection Plans The idea for community-based land management planning and prioritization is neither novel nor new. However, the incentive for communities to engage in comprehensive forest planning and prioritization was given new and unprecedented impetus with the enactment of the Healthy Forests Restoration Act (HFRA) in 2003.	Slide 3-6

OUTLINE	AIDS & CUES
This landmark legislation includes the first meaningful statutory incentives for the U.S. Forest Service (USFS) and the Bureau of Land Management (BLM) to give consideration to the priorities of local communities as they develop and implement forest management and hazardous fuel reduction projects. For a community to take full advantage of this new opportunity, it must first prepare a Community Wildfire Protection Plan (CWPP). Local wildfire protection plans can take a variety of forms, based on the needs of the people involved in their development. Community Wildfire Protection Plans may address issues such as wildfire response, hazard mitigation, community preparedness, or structure protection—or all of the above. The process of developing a CWPP can help a community clarify and refine its priorities for the protection of life, property, and critical infrastructure in the interface. It also can lead community members through valuable discussions regarding management options and implications for the surrounding watershed.	

OUTLINE	AIDS & CUES

The language in the HFRA provides maximum flexibility for communities to determine the substance and detail of their plans and the procedures they use to develop them.

Because the legislation is general in nature, some communities may benefit from assistance on how to prepare such a plan.

The HFRA requires that three entities must mutually agree to the final contents of a CWPP:

- the applicable local government (i.e., counties or cities),
- the local fire department(s), and
- the state entity responsible for forest management.

In addition, these entities are directed to consult with and involve local Federal firefighting representatives and other interested parties or persons in the development of the plan.

The process is intended to be open and collaborative, as described in the 10-year strategy, involving local and state officials, Federal land managers, and the broad range of interested stakeholders (Preparing a Community Wildfire Protection Plan: A Handbook for Wildland Urban Interface Communities).

OUTLINE	AIDS & CUES
The instructor may expand on this topic. For example, ask if students have seen any CWPPs from their jurisdiction.	
C. Fire Adapted Communities The USDA Forest Service developed the Fire Adapted Communities program in 2009. It is based on the Quadrennial Fire Review's recommendation that creating fire adapted communities is the best alternative to escalating wildfire in the interface. The strategy promotes multijurisdictional use of a suite of mitigation tools focused on helping communities live successfully with wildfire through mitigation and preparation, rather than depending upon suppression and protection resources that are not always available. Fire adapted communities have these primary elements: • An informed and active community that shares responsibility for mitigation practices • A collaboratively developed and implemented Community Wildfire Protection Plan (CWPP) • Structures hardened to fire and including adequate defensible space practices; advocated by Firewise Communities, Institute for Business and Home Safety (IBHS), and others	Slide 3-7

OUTLINE	AIDS & CUES
• Local response organizations with the capability to help the community prepare and can respond to wildfire; advocated by Ready, Set, Go! • Local response organizations with up-to-date agreements with others who play a role in mitigation and response • Wildland Urban Interface (WUI) Codes and Standards or Ordinances, where appropriate, which guide development • A visible wildfire reduction prevention program that educates the public about the importance of a communitywide approach and the role of individual homeowners • Adequate fuels treatments conducted in and near the community, including development and maintenance of a fuels buffer or firebreak around the community • Established and well-known evacuation procedures and routes	
D. Informal Pre-Incident Planning Informal pre-incident planning ranges greatly in its depth and scope. It can be as simple as only identifying interface areas in the response area or as complex as compiling detailed individual structure triage information.	Slide 3-8

OUTLINE	AIDS & CUES
Regardless of the detail and formality of a pre-incident plan, just having familiarity of the interface response area will be a benefit to responders before any interface incident occurs.	
When is informal pre-incident planning recommended?	Slide 3-9
• When no formal plans are in place • When changes occur in the interface not reflected in an existing formal plan • When new communities or structures are built in the interface • Any time to refresh familiarity with interface incident issues and procedures	
If no formal planning is in place, it is up to you to develop your own plan of action as required to respond to an interface incident.	
III. WILDFIRE HAZARDS ASSESSMENT TECHNOLOGY	Slide 3-10
The instructor may expand on this topic. For example, ask students if they are aware of any commercial hazard assessment technology that is used in their home unit or jurisdiction.	
There are technologies available to assist in the development of pre-attack plans, which include electronic storage of site-specific information	

OUTLINE	AIDS & CUES
including photographs of individual properties. This is just a partial list, as many commercial, municipal, state, and Federal entities offer a variety of hazard assessment programs. • Geographic Information Systems (GIS) • Hazard assessment technology – quantitative and qualitative methodology to assess wildfire hazards and offer suggestions to mitigate hazards for property owners. • County and private ownership parcel maps • Satellite-based mapping software • Internet-based mapping websites • Commercially available hazard maps These options vary in complexity and function but can provide valuable information and guidance for building a pre-incident plan.	
IV. PRE-INCIDENT PLANNING ITEMS OF IMPORTANCE Students should identify items that should be noted in pre-incident planning such as: • Safety zones and escape routes • Access and egress (locked gates) • Fuels (wildland and landscaping) • Topography	Slide 3-11

OUTLINE	AIDS & CUES
• Predominant construction types • Structure density • Water sources (streams, hydrants, wells, swimming pools, cisterns, and water tanks) • Utilities (power lines or pipelines) • Propane tanks • Presence of outbuildings • Presence of large domestic animals • Hazardous materials • Aviation hazards • Previous fire history in the area • Local weather factors • Resource availability • Evacuation routes and safe refuge areas • Staging areas • Areas to potentially shelter-in-place	

OUTLINE	AIDS & CUES
V. PUBLIC INTERACTIONS	Slide 3-12
A. Residents and Property Owners If you are fortunate enough to be operating in an area with a pre-attack plan that was developed with input from landowners and homeowners, you have at least some level of community involvement and knowledge about wildfire. It is better to contact landowners well before an incident occurs rather than immediately before an emerging incident. To help prepare for this situation in your local area, it is critical that public relations programs be in operation before the start of the fire season. Creating public awareness of the problems that exist before there is a fire can help develop the cooperation needed when a fire occurs.	
B. Media Interaction Interface incidents generally attract the attention of news media. Expect and plan ahead for media personnel to be onscene at the incident. It is prudent to identify media contacts that will be there to cover these events. Identify these contacts before fire season and invite them to planning or pre-incident surveys or even have them take basic fire training.	

OUTLINE	AIDS & CUES
Making contact well before an incident occurs will greatly benefit both parties at performing their jobs. • Express the importance of media avoiding inquiries that distract operational personnel from their tasks at hand. • If available, pre-arrange and use a Public Information Officer to manage media requests. • If needed, plan for and use media outlets to reach the general public regarding incident status or events such as large-scale evacuations. • Remember, media outlets can be an excellent source to disseminate information to a large audience during an interface incident.	
VI. CONCLUSION Many resources are available for pre-incident planning. Ensure you are aware of the resources available in your jurisdiction. Also, ensure pre-incident planning is done in your jurisdiction so the information gathered can be made available to incoming resources in order to make interface firefighting a safe and effective endeavor in your jurisdiction.	Slide 3-13

OUTLINE	AIDS & CUES
In addition, when you are assigned to an interface incident outside your jurisdiction, ensure you are asking for pre-incident planning information that will make your efforts more safe and effective.	
Review Unit Objectives.	Slide 3-14

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 4 – Sizeup and Initial Strategy

Time 1 hour

Objectives

1. Describe items to consider when sizing up an interface fire, before and after arriving at the scene.
2. Describe items to consider when developing an initial strategy and plan.
3. Describe initial operations and briefing requirements during an emerging interface incident.
4. Discuss issues regarding evacuation operations during an interface incident.

Strategy

Using a combination of lecture and written reference materials, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture and discussion with PowerPoint presentation

Instructional Aids

- ☐ Flip charts
- ☐ Personal computer with LCD projector and presentation software or overhead projector and screen with overhead transparencies
- ☐ Wildland Fire Incident Management Field Guide (PMS 410-1, NFES 0065)
- ☐ Fire Behavior in the Wildland/Urban Interface video

Exercise(s)

- None

Evaluation Method(s)

- None

Outline

I. Introduction

II. Sizeup – En Route

III. Sizeup – At the Scene

IV. Initial Strategy and Plan

V. Initial Operations During Emerging Incident (Regardless of Level of Pre-Planning)

VI. Briefing and Deployment

VII. Evacuation

VIII. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 4 – Sizeup and Initial Strategy

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 4-1
Present Unit Objectives.	Slide 4-2
I. INTRODUCTION	Slide 4-3
When sizing up any wildland fire, information is collected en route and upon arrival at an incident. The sizeup process is the same for an interface fire and a purely wildland fire. However, there may be additional items to note when responding to an interface fire.	
II. SIZEUP – EN ROUTE	Slide 4-4
Sizeup is an orderly process in which a firefighter develops a mental picture en route to the fire of what is occurring, as well as the factors that are present upon arrival at the fire scene. During sizeup, a firefighter also predicts where the fire will go and what type of fire behavior to expect.	
Because wildland fires are dynamic, the sizeup process will continue until the completion of the fire. A good initial attack Incident Commander (IC) will constantly reevaluate the fire factors present, make a fire behavior prediction, and make adjustments to his or her plan.	

OUTLINE	AIDS & CUES

A. Previous Fires

Knowledge of previous fires in an area can be a valuable tool. Wildfires tend to follow historic patterns, given similar weather conditions. Many individuals with long-term experience in a given area have used this type of knowledge and appear to have made only instinctive tactical moves. Many organizations can provide fire history information; find it and use it.

B. En Route to the Fire

En route to the fire, start observing the weather factors, such as wind direction and speed. In addition, observe the smoke column when you get closer to the fire. The smoke column will give you some good information about current fire behavior. Examples are as follows:

1. On a wind-driven fire, the smoke column will give you information on the direction of fire spread.

2. The color of the smoke column may give you an indication of the type of fuels involved and a general idea of the fire's intensity.

3. The smoke column will also indicate the stability of the air mass. If it is a well-defined column at a great height, one could assume that an unstable atmosphere may be present.

OUTLINE	AIDS & CUES
C. Nearing arrival at the fire area, start evaluating the following fire factors: 1. Observe the fuel characteristics present in the interface, including wildland and ornamental fuels. 2. Consider the weather factors you are observing and those that are predicted. 3. Observe the topography and lay of the land and the locations of any structures that are present. 4. Evaluate the type of construction materials used in structures in the area. 5. Are the homes occupied or vacant? Will evacuation be necessary? 6. Evaluate water sources that are available. 7. Additional information can be found in the Incident Pocket Response Guide (IRPG).	

OUTLINE	AIDS & CUES

Once you can see the fire, start observing fire behavior. If weather, fuels, and topography are the same where you will be assigned, you should expect similar flame lengths and rates of spread. Remember that the fire is the truth; it is one of the prediction tools available. On your way in, also keep an eye out for appropriate safety zones, temporary refuge areas, and staging areas should you require them in the future.

D. Additional Information

Many times you can get additional pertinent information from your local dispatch; however, if you are responding to another jurisdiction, seek information from the requesting agency. See local and/or regional coordination centers' websites.

In addition, you can obtain current weather and fuels conditions from many websites. Types of information available include:

- Pre-attack plans
- Fire weather forecast
- Fire danger observations and forecasts
- Projected fire conditions: flame length, spotting factors, and rate of spread

OUTLINE	AIDS & CUES
• Resource availability for your agency and cooperators • Feedback from other sources; detection, aerial reconnaissance flights, observers, lookouts, etc. Evaluation of this information should begin to give you a good picture of the fire potential for a specific area on any given day. Your initial sizeup before arriving at an interface incident should give you the foundation from which good future decisions may be built.	
III. SIZEUP – AT THE SCENE Now that you are onscene, you again will be looking at many of the same factors you considered when you did the sizeup en route. However, now you can use the onscene factors to gather additional facts, make predictions, build your situation awareness (SA), and develop a plan. Evaluate the following factors: • Note the locations of safety zones and escape routes. • Note the number, arrangement, and types of structures. • Are structures safely defensible? • Are water supplies available?	Slide 4-5

OUTLINE	AIDS & CUES
• Where is the fire currently in relation to the structures? • What are the factors that are causing the fire to spread, such as fuels, weather, and topography? • What is the current and expected fire behavior? • Are adequate resources available to do the job at hand? After your sizeup is completed, give a report on conditions, take command of the incident, and order additional resources as appropriate.	
IV. INITIAL STRATEGY AND PLAN The successful management of an interface incident begins with the first responding company officer or initial attack IC. The development of your initial strategy and action plan should have involved the following: • Knowing the facts you gathered (SA) • Knowing the resources available • Knowing the forecasting and predictions you made With this information, you can now start to develop your initial strategy and action plans, and deploy your resources.	Slide 4-6

OUTLINE	AIDS & CUES
The plan will be based on the incident priorities. Operations can vary to some degree on every incident, but the following priorities must be considered when developing incident management objectives: 1. Protect life. • Firefighters and civilians. • Always the first priority. 2. Stabilize the incident. • Save property that can be saved. • Control wildfire. 3. Avoid damage to property, and conserve resources. • Avoid damage to property, improvements, and natural resources. When preparing property for protection, do only what is necessary for the defense of the property (e.g., choose limbing instead of falling, thinning instead of removing, etc.). • Conserve resources to be able to fight fire until the job is done (e.g., putting only enough of the fire perimeter out to allow the main fire to pass around the structure).	Slide 4-7

OUTLINE	AIDS & CUES
The three priorities described above should guide you during the development of your incident management objectives, strategies, tactics, and initial plan.	
The instructor may choose to elaborate on the planning process, depending on the skill and experience levels of the students.	
On small incidents, the task of developing incident objectives and strategies is the responsibility of the IC. This may only take a few minutes.	
On larger incidents, the Agency Administrator and members of the command and general staff will contribute to this process.	
V. INITIAL OPERATIONS DURING EMERGING INCIDENT (REGARDLESS OF LEVEL OF PRE-PLANNING)	Slide 4-8
Initial firefighting resources onscene may encounter other responding resources, homeowners, or media, creating traffic congestion from vehicles moving in and out of the fire scene.	
Maintain situation awareness, develop needed intelligence, organize available resources, and order additional support if needed.	
You must rapidly develop a mental action plan, set priorities, and delegate responsibilities. Maintain SA at all times, scout the area, and do a thorough evaluation of the fire-threatened area, which includes structure triage.	

OUTLINE	AIDS & CUES

A. Initial Action Priorities

1. Make a fire-behavior prediction. What fire behavior is observed and what is expected? What is the weather expected to do?

2. Plan for firefighter and public safety:

   - Identify your escape routes, safety zones, and temporary refuge areas.

   - Request assistance from law enforcement agencies, and consider the need to evacuate citizens and provide traffic control.

   - Post lookouts or send out observers to gather intelligence and provide updated information on the proximity of the fire front if not obvious.

3. Establish and maintain command, control, and accountability:

   - Maintain contact with all units onscene and the local dispatch office; establish separate command and tactical radio frequencies as needed to organize communications.

OUTLINE	AIDS & CUES
• If you are the first firefighter onscene, provide an initial sizeup with all required elements. This is critical for ensuring that dispatch offices understand the fire situation; provide incoming units with information on routes of travel, initial assignments, and ordering additional resources. • If appropriate, establish a staging area for incoming units that is large, easy to access, and located in an area that will not be compromised by the spreading fire. Designate a staging area manager to coordinate incoming resources, and provide information on resource availability.	
B. Public Contacts Some residents are ready to flee at the first sight of smoke, whereas others will want stay with their homes. It may be necessary to provide information regarding fire status, location of safe areas, and potential impact of operations. 1. Residents who remain can be helpful. They may know the locations of other structures, water sources, access routes, hazards, etc. They can help prepare their home before the fire hits.	Slide 4-9

OUTLINE	AIDS & CUES
2. Homeowners who remain should be advised of basic safety considerations.	Slide 4-10
3. If time permits, the checklist, Caught in a Wildfire (located in Appendix D – Reference Materials) is a handout that may be given to homeowners. The checklist includes the actions to be taken inside and outside the house, proper clothing to wear, and other guidelines for family safety.	
4. Sheltering in place may put citizens at risk and may interfere with operations. Consider the additional stress remaining homeowners put on firefighters to stay longer than safety permits.	
VI. BRIEFING AND DEPLOYMENT	Slide 4-11
A. Stress safety (Lookout[s], Communication[s], Escape Route[s], and Safety Zone[s] [LCES]) and risk management.	
B. Make assignments based on priority and resource capability and availability.	
C. Give all resources a thorough briefing, and stage or assign the resources.	
Refer students to the briefing checklist on the inside of the back cover of the IRPG, and discuss.	

OUTLINE	AIDS & CUES
D. Ensure everyone understands the chain of command, who they will report to, and their command responsibilities.	
E. Provide contingency plans.	Slide 4-12
F. Discuss communication plan.	
G. Ask questions; be sure everyone understands.	
H. Provide maps and pre-plans, if available.	
VII. EVACUATION	Slide 4-13
EVACUATION AUTHORITY VARIES ACROSS THE COUNTRY; ADDRESS YOUR LOCAL EVACUATION AUTHORITY.	
A. Coordinate With Law Enforcement	
Enforcing evacuation is usually the responsibility of law enforcement. Individual states may have different laws.	
It is absolutely essential that immediate or planned evacuations are coordinated with local law enforcement and county government.	
1. Evacuation may be required to clear the area for firefighting operations and to minimize risk to citizens. We can ask people to evacuate, but only law enforcement officers have the authority to make them leave.	

OUTLINE	AIDS & CUES
2. Advise evacuees to take a minimum of belongings with them. Suggest they close up, but not lock, their residences. Direct them to the appropriate route, to watch for incoming equipment, and to any location where they are to gather (safe area). These are holding areas where evacuees and/or emergency responders will stay until hazards are mitigated. 3. In the event immediate evacuation of homes or businesses is not necessary, but imminent evacuation may be required, consider planning evacuations in stages dependent upon the reaching of trigger or management action points. This will better enable property owners to plan and prepare mentally, and promote better communication and coordination with the public and law enforcement agencies.	

OUTLINE	AIDS & CUES

B. Routing Traffic and Establishing Access

ADHERE TO YOUR POLICY REGARDING TRAFFIC CONTROL.

1. Request assistance from local law enforcement for traffic control. If law enforcement is not onscene, delegate an individual to manage traffic control. Use emergency warning devices and other traffic control devices as necessary. Coordinate traffic control with law enforcement when they arrive onscene.

2. Develop a traffic plan, and communicate the information to all units and dispatch. Identify routes into and out of the area with signs or flagging.

3. Clear existing traffic to make way for fire equipment. Alternatively, direct civilian traffic to the roadside until fire equipment has passed and instructs them when they can proceed.

4. Leave a clear path for other incoming units. If you are parking, stage your vehicle clear of the road. Note weight limits or bottlenecks that may limit some equipment.

OUTLINE	AIDS & CUES
VIII. CONCLUSION As with any wildfire response, begin building your situation awareness as soon as possible. Begin collecting information while en route to the incident. Build an effective and safe action plan, considering any additional items required for the specific incident, and implement operations as soon as feasible.	Slide 4-14
Review Unit Objectives.	Slide 4-15

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 5 – Structure Triage

Time 2 hours

Objectives

1. List the four structure triage categories and the four items in the decision process.
2. List five factors upon which to base structure triage decisions, and give three examples of each.
3. List conditions that may indicate that a structure cannot be saved.

Strategy

Using a combination of lecture, exercise, and written reference materials, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture and discussion with PowerPoint presentation

Instructional Aids

- ☐ Flip charts
- ☐ Personal computer with LCD projector and presentation software
- ☐ Incident Response Pocket Guide (PMS 461, NFES 1077)
- ☐ Sample Triage Form handouts

Exercise(s)

- Structure Triage Decisionmaking

Evaluation Method(s)

- None

Outline

I. Structure Triage

II. The Decision Process

III. Five Factors That Affect Your Triage Decision

IV. Decisionmaking Exercise

V. When Structures Cannot Be Saved

VI. Consider All the Factors

VII. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 5 – Structure Triage

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 5-1
Present Unit Objectives.	Slide 5-2
I. STRUCTURE TRIAGE	Slide 5-3
A. Introduction Structure triage is the systematic process of sorting and prioritizing of structures requiring protection from wildland fire. A more detailed definition of structure triage is: The systematic sorting of and allocation of treatment to structures in a wildland fire environment according to a system of priorities designed to maximize the number of successful outcomes. The word "triage" originates from a word meaning to divide into three parts. Basically, it amounts to: (1) eliminate the hopeless, (2) ignore the unnecessary, (3) deal with the rest. While we, as firefighters, hesitate to write off any threatened structure, triage is necessary to prevent futile waste of effort.	

OUTLINE	AIDS & CUES

Trying to save more than you realistically can might very well result in the loss of everything, including homes you could have saved. Forget the structures that are impossible or too dangerous to defend; leave those that are too well involved to save. Ignore, for now, the structures needing little or no protection. Concentrate on seriously threatened but savable structures.

Triage may be required of anyone at any time on the incident—from the Incident Commander (IC) doing reconnaissance to the engine crew moving into position.

The first consideration of structure triage must always be firefighter safety.

The goal of triage is to do the most good with what you have, and to not waste limited resources or time. It requires you to quickly categorize structures when time is short; however, you may also be gathering this information for future planning and development of a structure protection plan.

B. Structure Triage

The types of structures that may require triage for structure protection include:

- Residences
- Commercial properties

OUTLINE	AIDS & CUES
• High-value properties (communication vaults and towers, barns containing feed and livestock, garages containing vehicles, etc.) • Sites of historical and cultural importance • Buildings containing hazardous materials Not all structures may be worth the risk to defend. Structure triage categories: **The following categories are as listed in the IRPG. The instructor must make sure there is no confusion between triage categories and structure protection tactical actions as presented in the following unit.** • Defensible – Prep and Hold (threatened but defensible) – Determining factor: Safety zone present. – Sizeup: Structure has some tactical challenges. – Tactics: Firefighters needed onsite to implement structure protection tactics during fire front contact.	Slide 5-4

OUTLINE	AIDS & CUES
• Defensible – Standalone (not threatened) – Determining factor: Safety zone present. – Sizeup: Structure has very few tactical challenges. – Tactics: Firefighters may not need to be directly assigned to protect structure, as it is not likely to ignite during initial fire front contact. However, no structure in the path of a wildfire is completely without need of protection. Patrol following the passage of the fire front will be needed to protect the structure. • Non-Defensible – Prep and Leave – Determining factor: NO safety zone present. – Sizeup: Structure has some tactical challenges. – Tactics: Firefighters not able to commit to stay and protect the structure. If time allows, rapid mitigation measures may be performed. Set trigger points for safe retreat. Patrol following the passage of the fire front will be needed to protect the structure.	

OUTLINE	AIDS & CUES
• Non-Defensible – Rescue Drive-by (threatened but non-defensible) – Determining factor: NO safety zone present. – Sizeup: Structure has significant tactical challenges. – Tactics: Firefighters not able to commit to stay and protect structure. If time allows, ensure people are not present in the threatened structure (especially children, elderly, and invalid). Set trigger point for safe retreat. Patrol following the passage of the fire front will be needed to protect the structure.	
II. THE DECISION PROCESS This section outlines and illustrates a consistent and logical process for reaching a decision based on all the relevant factors.	Slide 5-5
A. Greatest Potential Threat Look at the greatest potential threat, based on the assumption that the fire behavior will be the worst possible under the prevailing conditions. Although you may not base your actions on such a possible threat, at least have an alternative plan should the worst develop.	

OUTLINE	AIDS & CUES

Consider:

1. Fuels (estimate lowest fuel moisture or highest potential for firebrands).

2. Weather (potential worst-case burning conditions).

3. Terrain (as conditions change, will any topographic features align to increase fire behavior).

4. What is the greatest vulnerability of the structure?

B. Probable Threat

Look at the probable threat, based on the fire behavior that is most likely to occur under the conditions. It is this situation that should guide your decision on the action to take.

Consider:

1. The actual fire intensity and firebrand problem you expect.

2. Those aspects of the structure that remain vulnerable under the expected fire behavior even with some clearing and protective action being taken.

OUTLINE	AIDS & CUES
C. When will the fire arrive, and how long will the threat to the interface last? This will determine your preparation and commitment time. The arrival time of other resources will determine their usefulness. Consider: 1. Rate of spread and intensity. 2. Orientation dynamics of the fire as it moves into the structures. 3. Arrival times of other resources.	
D. How will you proceed with your triage decision? This has to be your best judgment of what you can accomplish in the face of the expected threat. Using a logical process, such as that described in the flowchart on the slide, will help you arrive at your triage decision.	Slide 5-6
Hand out triage checklists. Review handouts with students. Several triage checklists have been developed for use by homeowners and firefighters. These checklists can be used for educating the homeowner in the procedure of making his or her home fire survivable. The same checklists can be used in emergency situations to analyze defensible space and help the firefighter	Slide 5-7 HO 5-1 through HO 5-3

OUTLINE	AIDS & CUES
determine actions that may be necessary to save the structure.	
III. FIVE FACTORS THAT AFFECT YOUR TRIAGE DECISION The five factors that affect your triage decision are: • Firefighter and public safety • Fire behavior • Surrounding fuels (defensible space) • Available resources • Condition of the structure itself	Slide 5-8
A. Firefighter and Public Safety • Initial assessment – Can you survive here? • Is there a safety zone nearby? • Do you have a viable escape route? • What is the decision point at which we will leave based on fire behavior and rate of spread? • Is there a temporary refuge area present onsite in the event your escape route is compromised?	

OUTLINE	AIDS & CUES

- Do you have communications with your supervisor and adjoining forces?
- If a safety zone is not accessible nearby, LEAVE NOW.

B. Fire Behavior

- Can you survive here based on current and expected fire behavior?
- If there is a doubt, LEAVE NOW.
- Validate fire behavior (ongoing process).
- Look up, look down, look around indicators.
- Extreme fire behavior indicators.
- What will the fire behavior be when the fire gets here, and how long will it take based on fuel type?
- Weather – Wind speed and direction, humidity, and forecasts (increasing or decreasing fire behavior).
- Topography – Are fire environment factors in alignment? Are you in a topographical feature that will increase fire activity (located midslope and/or in a draw, chimney, or box canyon)?

OUTLINE	AIDS & CUES

C. Surrounding Fuels

- From 30 to 100 feet surrounding the structure.
- Defensible space size is usually expressed as the distance in feet from the structure in which vegetation is managed to reduce the wildfire threat. The necessary distance for an effective defensible space is not the same for everyone, but varies by terrain and type of vegetation growing near the structure.
- What are the characteristics of the surrounding fuels? Light and flashy with high rates of spread or heavily loaded with longer residence times and higher British thermal units (Btus)?
- Are wildland fuels immediately adjacent to the structure?

D. Available Resources

- Onsite resources (hand tools, ladders, equipment).
- Is there an adequate water supply onsite?
- Kind, number, and type of equipment available.

OUTLINE	AIDS & CUES

- Where the resources are located.
- When the resources are available – response time.
- Capabilities and limitations of the resources.

E. Structure Itself

- Will building materials and yard clutter compromise safety and success?
- Is the construction wood siding or shake shingle roof?
- Are there vent openings, open eaves, large glass windows facing fire front, or decks with overhanging vegetation?
- What are the contents in the garage and/or outbuildings?
- In what aspect is the structure located? Will the aspect contribute to increasing the fire behavior?
- Will access to the structure or operational requirements place personnel or equipment between the fire front and the structure?
- Are there propane tanks, power lines, or fuel tanks nearby?

OUTLINE	AIDS & CUES
The following decisionmaking exercise is included to promote discussion and get the students involved. Show each scenario and case using the slides, and have the students discuss in groups what triage decision they might make. Allow 10 minutes for student discussion.	
To make the previous section more specific to your local need or area, you are encouraged to develop one or two cases pertaining to your surrounding response area. This will enable you to bring the students closer to reality at home.	
IV. DECISIONMAKING EXERCISE	Slide 5-9 through Slide 5-21 IR 5-1 SR 5-1
ADMINISTER EXERCISE: Structure Triage Decisionmaking (IR 5-1 and SR 5-1). The exercise will illustrate the decisionmaking process. In groups, have students work through the exercise and then discuss their solutions on their flip chart.	
V. WHEN STRUCTURES CANNOT BE SAVED	Slide 5-22
Encourage students to discuss the scenarios described in paragraphs A–F of this section. An assumption is made that the safety zone is adequate and the focus is purely on the condition, survivability, and/or chance of saving the structure.	
Making a decision as to whether a house can be saved is a difficult one. If any of the following scenarios apply, the attempt to save that structure deserves careful consideration before continuing:	

OUTLINE	AIDS & CUES

A. The fire is making significant runs (not just isolated flare-ups) in the standing live fuels and said fuels are within close proximity of the structure you are protecting. The expected fire behavior will significantly and directly impact the structure.

B. Spot fires are igniting around the structure or on the roof and beginning to grow faster than they can be put out.

C. The water supply and stream flow will not allow you to continue firefighting until the threat subsides.

D. Potential conditions are changing, so you question your ability to safely remain at the structure, and your escape route could become unusable (blocked by fire, falling or rolling obstacles, etc.). Any condition within the fire environment that changes or has the potential to change may adversely affect the safety of personnel and equipment.

E. Generally, if a structure has more than 25% of its roof aflame and involved, the capability of a wildland type engine is exceeded in suppressing the exterior structure fire.

F. Interior rooms are involved with broken windows, in windy conditions, and other structures are threatened or involved.

OUTLINE	AIDS & CUES
VI. CONSIDER ALL THE FACTORS	Slide 5-23
Triage is a logical, systematic process, not a rote answer or simple formula. It requires you to make basic predictions of fire behavior and to estimate the capabilities and availability of resources.	
Several triage checklists have been developed for use by firefighters. These checklists can be used for educating the homeowner in the procedure of making his or her home fire survivable. The same form can be used in emergency situations to analyze defensible space and help the firefighter determine actions that may be necessary to save the structure. Triage forms can also be used on long-term incidents in the fire planning process (structure protection plan).	
Refer students to the structure triage checklists, and briefly discuss. The instructor may also provide other examples. Refer students to the structure protection checklist in the IRPG.	
Currently, there are trends in fire-wise communities to develop a placard-type system designating houses that are fire safe. See internet website at http://www.firewise.com.	
VII. CONCLUSION	Slide 5-24
It is extremely important that you evaluate all the factors that will influence your decision to stay and defend the structure or move to a structure that can be saved. Valid consideration of not only current fire behavior, but *expected* fire behavior must be included in your decisionmaking process.	

OUTLINE	AIDS & CUES
Fire conditions may change and cause you to reevaluate your initial triage tactical decisions. • Maintain situation awareness. • Be realistic in your goals and capabilities. • Don't let emotion cloud sound judgment. Developing a systematic process and using a checklist for sorting structures into groups based on their need for or likely benefit from immediate treatment before an interface incident occurs will build in planning time. This will allow more focus on the actual task at hand. Remember that the goal of triage is to do the most good with what you have, and to not waste limited resources or time.	
Review Unit Objectives.	Slide 5-25

EXERCISE: Structure Triage Decisionmaking

Purpose: Students will make structure triage decisions based on given information.

Time: 30–45 minutes

Materials Needed:

- PowerPoint slides 5-9 through 5-20.
- Flip chart or white board with markers.
- Maps
- Incident Response Pocket Guide

Preparation: Instructors are recommended to review scenarios and PowerPoint slides before the presentation. If local scenarios are used, thorough development and review of materials and presentation medium (e.g., audio and/or video) should be performed before the presentation.

Instructions: Divide students into small groups or have them work individually. Some suggested solutions are listed in bold below each section. There is no right or wrong answer.

Scenario 1

Situation:

Two adjacent homes are approximately 50 feet apart. House #1 has wooden siding, a shake shingle roof, and is surrounded on three sides by flammable brush. House #2 has aluminum siding, few adjacent landscaping fuels, well-watered grass, and a composition shingle roof. Both houses have leaf litter and needle cast on their roofs.

Case 1: The fire is burning only the leaf litter, moving progressively past the two houses. You have a full 500-gallon tank of water and are the only engine available. What would you do?

Control the fire at the first house it reaches, and lead it past the second. Save both houses.

Case 2: The fire is burning the brush, hitting broadside, and threatening both houses at the same time. You have 250 gallons of water left and are the only engine available. House #1 will receive direct flame impingement; house #2 will receive only firebrands. What would you do?

Focus efforts and use your limited water to defend house #2. At least you will have a better chance given the conditions. With only 50 feet between the structures, you must consider the exposure problems created by a fully burning structure (house #1). Now you are not only defending house #2 from a wildfire but also from a fully involved structure next door.

Case 3: As in Case 2, the fire is burning the brush and threatening both houses at the same time. This time you have a full tank of water, 500 gallons. You can protect house #1 as the fire hits it and in the process will significantly diminish the intensity at the head of the fire. A second engine will be there within 5 minutes. What would you do?

Take house #1 and do everything you can to save it. You might be able to simultaneously deploy a hose line to the second house and to have a firefighter spend at least some time on spot fires.

House #2 will last until the other engine arrives. The second engine can handle house #2 and perhaps even give you a little help too. Save both houses.

Scenario 2

You are sent into an area with four houses. Burning conditions are so severe that you can expect the standing live fuels to burn readily. You have a full tank of water (500 gallons), but no other resources will be available until well after the fire is past.

The most threatened house (#1) is located in heavy fuels. It would require all of your water to save it, and the other houses would be involved by the time you could be free again.

The second-worst house (#2) is located in moderately heavy fuels; it would require half of your water and commitment of 10 to 20 minutes to save it.

The last two houses (#3 and #4) are threatened only by firebrands on the roof. What would you do?

First, consider taking on the most threatened house. You will save it, but with no time or water left, you will lose the other three.

Next, consider taking on the second house. You will save it, and there is a good chance you will have time and water to deal with spot fires on the last two houses. You could save three.

Finally, consider taking on the easiest two houses. You can save them easily, but you will lose the other two.

The second alternative will save the most houses; three houses saved.

Evaluate all of the relevant factors the best you can, then be organized in considering the best course of action. Get the most from your resources.

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 6 – Structure Protection Overview

Time 1 hour

Objectives

1. Select a tactical action and determine if it is offensive or defensive.
2. List the seven structure protection tactical actions.

Strategy

Using a combination of lecture and written reference materials, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture and discussion with PowerPoint presentation

Instructional Aids

- ☐ Flip charts
- ☐ Personal computer with LCD projector and presentation software
- ☐ Incident Response Pocket Guide (PMS 461, NFES 1077)

Exercise(s)

- None

Evaluation Method(s)

- None

Outline

I. Introduction

II. Structure Protection Strategy

III. Structure Protection Tactical Actions

IV. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 6 – Structure Protection Overview

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 6-1
Present Unit Objectives.	Slide 6-2
I. INTRODUCTION	Slide 6-3
Instructor should add accepted localized tactics used to develop student understanding.	
Structure protection involves an understanding of several tactical operations and when and where these tactics are appropriate to the current and predicted behavior of the fire incident. In some instances, mobility is critical to the task of maintaining pace with the fire spread. In other situations, the planned need requires static positions. On a large fire, at different points, mobility is the key, but on other parts of the fire, static operations may be occurring. Each situation requires a suite of tactical options that is based not on time-worn strategies but on the evolving necessities of understanding "where you are in an incident" and the appropriate actions required to successfully protect lives and property.	

OUTLINE	AIDS & CUES

Safety zones guidelines in the IRPG are not designed for structure protection. In interface areas, numerous interruptions of fuel continuity and type allow safe operating areas for interface firefighting. Remember: A safety zone is an area where a firefighter can survive without a fire shelter.

However, as in any suppression activity, establishing an adequate escape route and safety zone is required before initiating any suppression activity in the interface.

The instructor should make a point to explain the difference between structure triage terms in the previous chapter and tactical actions in this chapter.

II. STRUCTURE PROTECTION STRATEGY — Slide 6-4

Determine the overall structure protection strategy – Is the operation defensive or offensive or a combination of both?

A. Defensive Mode: Actions taken before the fire arrives – site and structure preparation (i.e., foam or gel use on structures, pre-treatment, and/or removal of vegetation).

B. Defensive Mode: Actions taken as the fire front arrives (i.e., structure fire control and burnout operations).

C. Defensive Mode: Actions taken after the fire front passes (i.e., secure the structure and begin mop up activities).

OUTLINE	AIDS & CUES
D. Offensive Mode: Perimeter control and/or direct attack to suppress the fire before it arrives at the structure.	
E. Combination:	
• Direct attack of fire around the structure.	
• Defensive firing to develop a buffer.	
• Prep work with engines, dozers, crews, and/or aircraft.	
• Bump and Run is a high-mobility tactic and can be a defensive tactic to effectively take perimeter control action. It can be an offensive tactic when resources are steering the head of the fire to a desirable end point.	
III. STRUCTURE PROTECTION TACTICAL ACTIONS	
A. Tactics employed in exterior structure protection are generally the same for both Federal and non-Federal firefighting agencies regardless of the type of resources used. The best form of structure protection is to stop or divert the fire before it impacts structures, using conventional wildland tactics of:	Slide 6-5
• Anchor and flank	
• Envelopment	

OUTLINE	AIDS & CUES
• Line construction (direct and indirect) • Firing out • Hot spotting • Extinguish spot fires (vegetation and/or structure)	
Listed below are structure protection tactical actions based on triage determinations of Defensible and Non-Defensible structures. These actions make use of conventional wildland tactics.	Slide 6-6
1. Check and Go or Rescue Drive-by (Non-Defensible): • A rapid evaluation to check for occupants at a structure and determine whether it is defendable. Used when fire spread, intensity, or lack of time prohibits resources from having the opportunity to (safely) protect the home. • The purpose is to evaluate the life threat to occupants and to assist in their evacuation.	Slide 6-7
2. Prep and Leave (Non-Defensible): Time exists to prepare a structure ahead of the fire front. However, the expected fire behavior makes it too	Slide 6-8

OUTLINE	AIDS & CUES
dangerous to stay when the fire front arrives or a safety zone does not exist. • Advise residents to leave, and advise supervisors of any residents who choose to stay so followup on their welfare can be initiated after the fire front passes. • Consider rapid prioritized fire defense preparations such as the use of gel or foam on the structure before leaving. • Resources **must leave** in adequate time to avoid the loss of **escape routes**.	
3. Prep and Hold (Defensible): • A tactic used when adequate time exists to safely prepare the structure for defense before the arrival of the fire front. Fire behavior must be such that it is safe for firefighters to stay and engage the fire. • **Adequate safety zones and escape routes are identified.**	Slide 6-9

OUTLINE	AIDS & CUES
• Defend implies that personnel will likely remain. However, personnel must not lock into a course of action if the conditions become unsafe to stay.	
4. Bump and Run (Defensible)	Slide 6-10
• If the fire behavior allows, resources typically move with the fire front or ahead of the fire front in the "spotting zone" to extinguish spot fires and hot spots and to defend structures as the fire front arrives. This may involve direct attack with hand lines, and defensive firing operations may occur. Resources must remain mobile and able to maneuver quickly from one structure to another to defend as many structures as possible. "Leap-frogging" of resources may occur. • Often used when inadequate resources are available to conduct perimeter control or other structure protection tactics.	

OUTLINE	AIDS & CUES
• It is imperative to maintain situation awareness and communication with adjoining forces and your supervisor so as to avoid entrapment. • Structure preparation is minimal due to constricted time constraints. • Firefighters must move on when structures become involved and a quick knockdown cannot be achieved. • As additional resources arrive, they should be deployed behind the Bump and Run for followup on perimeter control and structure protection.	
5. Anchor and Hold (Defensible): • This tactic is used when the primary mechanism of fire spread is house to house, primarily in common neighborhoods or commercial areas. • Goal is to protect exposures, reduce ember production, and extinguish structure fires.	Slide 6-11

OUTLINE	AIDS & CUES
• Utilizes hand lines and master streams in conjunction with fixed water supplies (i.e., hydrants and drafting). Exposures are protected using water curtains. **Tactic should only be used when water supplies are abundant and engines have the capability to produce and maintain high water volumes and pressure.** • Often used in conjunction with Bump and Run tactic. Bump and Run is used to pick up spots downwind, whereas Anchor and Hold is used to prevent house-to-house ignition and ember production. • Make use of Class-A foams and gels to assist in mop up and to prevent secondary ignitions.	
6. Fire Front Following (Non-Defensible): • Used as followup tactic on unstaffed structures. • Can be used concurrently with Bump and Run tactics.	Slide 6-12

OUTLINE	AIDS & CUES
• Resources are in a safe area, and after fire front passes, engage in perimeter control, extinguish hot spots, and search for victims. • Resources engage in structure fire control on **partially** involved structures and mop up of involved structures that are producing large amounts of embers that threaten uninvolved structures and/or wildland fuels. • Secure the area so secondary ignitions do not occur.	
7. Mop Up and Patrol: • This is a critical post fire front tactic where threat remains to structures due to residual burning, ember cast, and islands of unburned vegetation. • On many incidents, substantial structure loss occurs after the fire front passes and resources move on without mop up. • The key elements are mobility and situation awareness and to continuously monitor the assigned area for flare-ups and structures threatened. The	Slide 6-13

OUTLINE	AIDS & CUES

source of threats may originate from residual burning of wood piles, lawn furniture, vegetation, or secondary ignitions caused from embers in void spaces and roof fires.

- Identifying and mitigating hazards such as burned out power poles, down power lines, fire weakened trees, etc., should also be a priority.

B. The complexity of interface fires can vary greatly depending upon fire behavior, number and types of resources, and jurisdictions involved.

C. The most effective form of structure protection is to suppress the wildfire first. However, the scattered location of structures in the interface can alter tactics commonly used in wildland firefighting, such as direct attack or burnouts.

D. In a dynamic, changing environment mobility can be an asset in the interface when using numerous tactics. In relatively static positions such as a fixed structure protection group, the emphasis may be on point protection, perimeter control, mop up, and patrol.

OUTLINE	AIDS & CUES
Dynamic – Resources need to be mobile to achieve objectives. Examples: • Check and Go • Prep and Leave • Bump and Run • Fire Front Following	Slide 6-14
Static – Resources need to remain at a fixed location or a proximity to the point to achieve objectives. Examples: • Prep and Hold • Anchor and Hold • Mop Up and Patrol can be either static or dynamic in nature.	Slide 6-15
E. When considering your tactics, consider the size and capabilities of your resources (i.e., low boys, tractor plows, water tenders, crews, and larger fire apparatus).	
F. Consider the use of task forces to achieve an increase of capabilities. • A mix of resources provides for versatility in operations, which lends itself well in a variable interface environment. • Resource availability may limit the use of strike teams (e.g., not enough numbers of like resources).	

OUTLINE	AIDS & CUES

- Using the right tool for the right job (e.g., crews help prepare structures; tractor plows construct fireline; engines provide support with a hose lay; water tenders support the engines).

G. To maintain rapid mobility, the use of hard lines (also known as live reels or booster lines) should be evaluated for effectiveness and safety. It is easier and faster to leave a section of cotton jacket hose than it is to retract a hard line.

H. As in all fire suppression, wise water use can be critical to structure protection due to limited supply.

- Water may be most effectively used in foam or gel solutions to wet down structure exposures before arrival of the fire front.

I. Resources requested may not be available and those onscene may not be able to control the spreading fire. Resources defending structures must be resourceful and self-reliant.

- As in all wildfire suppression operations, it is recommended that resources be self-sufficient when they arrive at the incident for a 24-hour operational period (i.e., have their own food, water, first aid, batteries, PPE, etc.).

OUTLINE	AIDS & CUES
J. The ability to communicate among all agencies and resources responding to interface fires is an absolute must. It is essential that unified command is established when appropriate in order to coordinate tactics, communications, and specific capabilities of adjoining forces.	
K. Situation awareness in the interface is required due to the numerous factors that can quickly compromise the safety of everyone involved, as in all wildland fire suppression activities.	
IV. CONCLUSION	Slide 6-16
If structures have been triaged before an interface incident occurs, more time will be available to evaluate current and expected fire behavior and make a decision to take an offensive or defensive tactical posture. However, the qualifying criteria—**Is LCES in place and is an adequate safety zone available?**—must exist before offensive tactics and strategies are implemented.	
Review Unit Objectives.	Slide 6-17

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 7 – Tactics in the Interface

Time 2 hours

Objectives

1. List items to consider when evaluating the structure's exterior.
2. Identify items to address when performing exterior structure preparation.
3. List tasks to perform when preparing the structure's interior.
4. Identify the importance and required tasks to perform after the fire front passes.

Strategy

Using a combination of lecture, exercises, and written reference materials, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture and discussion with PowerPoint presentation

Instructional Aids

□ Computer with LCD projector, presentation software, and screen

Exercise(s)

- South Dakota – West Rim Fire

Evaluation Method(s)

None

Outline

I. Introduction

II. General Structure Preparation Tactics

III. Performing Exterior Structure Preparation

IV. Pre-Treatment of Structures With Water, Foam, Gel, or Wrap

V. Interior Preparation and Other Considerations

VI. Followup After the Fire Passes

VII. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 7 – Tactics in the Interface

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 7-1
Present Unit Objectives.	Slide 7-2
I. INTRODUCTION	Slide 7-3
Either before an interface incident occurs or even before the fire front impacts the interface, many simple improvements will increase the defensibility of the structure. This is where pre-season triage and pre-attack plans can aid in decisionmaking on where to focus efforts. On some incidents, there may only be minutes to prepare, but on others, there may be days or weeks to prepare. Regardless of the scope and complexity of the incident, an accurate risk assessment must be implemented to ensure firefighter safety is the priority over any threats to property and natural or cultural resources. When time is compressed and immediate action is necessary, rapid assessment of the investment versus reward is required. What are the chances of success due to the improvements?	

OUTLINE	AIDS & CUES

- Will one structure positively (with 90% confidence) be made defensible but five others will be potentially lost?

- Will three structures most likely (with 60% confidence) be made defensible but three others will be potentially lost?

- Will all six structures possibly (with 30% confidence) be made defensible?

These decisions are unique to each situation in the dynamic fire environment. Decisions based on a variety of factors, conditions, and situations, and the feasibility of site preparation before arrival of the fire's front, depend on many factors, including:

- Current and expected fire behavior

- Number, skill set, and condition of resources available

- Defensibility or non-defensibility of the structure

- Amount of time available to perform improvements

- Volume of improvements necessary

When operating on private property, only make improvements that are necessary and reasonable to increase defensibility, while minimizing damage and loss to personal property.

OUTLINE	AIDS & CUES
II. GENERAL STRUCTURE PREPARATION TACTICS How much time before the fire front arrives and how many resources are available? • Based on your safety and the defensibility of structures, make the best decision about what to do with the time you have available for preparation. • Determine and create defensible space required based on current and expected fire behavior. • Remove combustibles adjacent to structures, and disrupt paths of least resistance between the fire and the structure. • Prepare the structure as best as possible. • Look for resources onsite to assist in preparation and defensibility. • Is there anything out of the ordinary on the site to create a hazard? – before, during, and after an interface incident.	Slide 7-4

OUTLINE	AIDS & CUES
A. Evaluating the Structure	Slide 7-5
Refer students to the Wildland Urban Interface section of the IRPG.	
Look at the structure as another fuel type. Wood roofs and some sidings are more vulnerable to ignition than other non-combustible types. Virtually any opening into the structure is an entry point for firebrands and thus, a vulnerability to the structure.	
Pay particular attention to these likely ignition points:	
1. Combustible roofs – especially shake singles	
2. Combustible siding	
3. Any opening into the structure including crawl-space accesses, vents, windows, or doors	Slide 7-6
4. Breezeways or courtyards where flammable debris can collect	
5. Decks and attached sheds	
6. Any projection on the structure such as eves, ledges, or soffits receptive to embers	
7. Other flammable materials adjacent to the structure	

OUTLINE	AIDS & CUES
B. Using Onsite Materials and Conditions to Assist Examples of natural fire breaks include: 1. Consider natural and man-made barriers to create fuel discontinuity: • Roads and driveways • Firewise or xeri-scaped landscaping • Healthy lawns or grazed fields • Cleared rights-of-way (watch for power lines) • Trails or paths 2. Look for things that can be used to help prepare the structure and fight the fire. With a little resourcefulness, many things around a home can be put to good use. Such things include: • Materials for covering openings (plywood, boards, sheet metal, etc.) • Hammers, saws, nails, wire, etc., for securing coverings • Ladders (locate on safest side of the house) • Yard tools for removing leaves or needle cast	Slide 7-7

OUTLINE	AIDS & CUES
• Additional homeowner assets including mechanized and hand-held equipment (saws, tractors, graders, bull dozers, etc.)	
C. Locating Water Sources Get permission and make contact with homeowners ahead of time (e.g., develop relationships and create agreements with property owners) whenever possible. Locate useable water sources, such as: • Hydrant and standpipe types (e.g., wet barrel, dry barrel, private industrial, or agricultural hydrants), which require activation before use • Pools and spas • Cisterns and tanks • Irrigation systems • Garden hose outlets • Yard sprinkler system timer/control box • Private lakes, ponds, or landscape water features.	Slide 7-8

OUTLINE	AIDS & CUES
D. Contacting Adjacent Resources (if applicable) 1. Confirm and coordinate actions, if beneficial. 2. Share knowledge of current and potential situation. 3. Discuss any concerns, and recommend actions. 4. Discuss assumptions or questions.	
E. Establishing Clearance Around Structures 1. Creating a home ignition zone or defensible space The size and condition of the home ignition zone contributes directly to the defensibility or non-defensibility of a structure. • Generally, the home ignition zone is 100–200 feet around the structure. Beginning at the structure, a 3-foot fuel-free zone should exist. • The next 30 feet around the structure should have any resinous landscaping and/or fuels removed.	Slide 7-9

OUTLINE	AIDS & CUES

- The remainder of the zone should be comprised of landscaping or fuels that are either resistant to wildfire or spaced far enough apart to create discontinuity.

- Lastly, the transition from the ignition zone into the wildland should be thinned to reduce fire behavior.

Ultimately, the fire environment and resultant fire behavior will dictate the effectiveness of any defensible space.

2. Removing and trimming fuels

If possible, seek permission from the landowner or appropriate authority.

a. Combustible material removal and vegetation maintenance is the responsibility of the homeowner. However, the fulfillment of this obligation varies greatly.

b. As a general rule, if firefighters are doing site preparation, the treatment distance should be at least three times the expected flame length. However, if the

OUTLINE	AIDS & CUES
structure is located on a slope, the treatment distance may need to be increased. • Use discretion and consider the homeowner's efforts and expense in landscaping, and balance removal and/or thinning with expected fire behavior. • When feasible, use the least invasive or damaging action on landscaping (e.g., removing limbs vs. falling trees, use of foam or gel, or using irrigation systems to saturate landscaped areas). c. Leave isolated or widely scattered plants and most ornamental shrubs and trees. Trimming lower branches and eliminating other ladder fuels will effectively isolate the aerial fuel from the fire.	

OUTLINE	AIDS & CUES

d. Pile cleared vegetation where it is not likely to burn or will not reduce defensibility of the structure if it does. Leaving trimmings or felled trees in concentrations will increase fuel loading and may reduce defensibility when near the structure.

e. Clear all flammable material around above-ground fuel storage tanks, and secure valves, if possible.

F. Removing Combustibles Located Near the Structure

Combustibles that are either connected to or near the structure may facilitate direct flame impingement or excessive radiant heat, or produce firebrands that will reduce the effectiveness of defensible space around the structure. Move the combustibles an appropriate distance away from the structure.

Common combustibles:

1. Wood piles

2. Combustible fencing – either wood or plastic

3. Deck and yard furniture

4. Awnings or combustible decorations

OUTLINE	AIDS & CUES
5. Combustible swing sets or play houses	
G. Removing Yard Accumulation	
In addition to the obvious combustibles that can directly threaten the structure, there may be common items scattered around the yard that can create control problems or have a value worth protecting. Also, yard accumulation can interfere with the placement and movement of hose lines and complicate and/or delay firing operations.	
Common items:	
1. Vehicles	
2. Boats and small trailers	
3. Stored material	
4. Construction and/or yard debris	
5. Just about anything imaginable	
III. PERFORMING EXTERIOR STRUCTURE PREPARATION	Slide 7-10
A. Prepare Roofs or Decks	
A combustible roof or deck is a readily and frequently ignited part of a structure exposed to wildland fire.	
• Clear needles and leaves off of the roof and out of the rain gutters if it can be done safely.	

OUTLINE	AIDS & CUES

- Ladders can be used to access roof areas that cannot be wet down with hose from the ground level. Avoid climbing on roofs if possible.

- If available, use sprinkler kits to wet down a combustible roof or deck.

- Apply Class A foam or gel to a combustible roof or deck.

- Remove combustible material from underneath a deck.

B. Cover Openings

- Any entry of fire or firebrands into the structure greatly increases control problems and the likelihood the structure will be damaged or destroyed.

- If materials are available, cover all large areas of single-pane windows that are exposed to the flaming front.

- Concentrate your efforts to openings on the side of the structure that is exposed to the fire.

- Leave window screens attached, and close any exterior window coverings.

OUTLINE	AIDS & CUES
IV. PRE-TREATMENT OF STRUCTURES WITH WATER, FOAM, GEL, OR WRAP	Slide 7-11 Slide 7-12
Instructors may expand on this section and provide additional materials if desired. Research current technology for latest advancement in structure pre-treatment.	
A. Sprinkler Systems Sprinklers may be used to wet down the structure and/or the vegetation around a structure. The amount of time available and specific pre-determined tactic will influence the extent and objective of sprinkler systems. If time allows on approaching fires, sprinklers located onsite can be used to wet down the structure and/or surrounding vegetation. On long-term management incidents, sprinkler kits can be ordered from the fire cache and set up in a manner so that their daily use can raise the relative humidity and fuel moisture of vegetation surrounding a single structure or group of structures. Pump kits also can be ordered along with porta-tanks if other water sources are not available to sustain the sprinkler system.	

OUTLINE	AIDS & CUES

Whether triage has determined the structure(s) are defensible (Prep and Hold or Standalone) or non-defensible (Prep and Leave or Rescue Drive-by), the use of sprinklers can be used as rapid or long-term mitigation to aid in structure protection.

B. Class A Foam

Foam should be applied to the structure by lofting the foam from a distance. Start on the roof, allowing layers to build up and completely cover all combustible surfaces. Roofs, eaves, exterior walls, and any combustibles on the ground adjacent to the structure can be covered.

Foam will cling to walls and the roof to provide the insulating barrier needed to protect from heat and flying embers.

For best results, apply wet foam first for moisture penetration and fluid foam second to cover and help insulate the structure.

A final covering of the structure with dry foam will add additional insulation.

- Wet foam
- Fluid foam
- Dry foam

Foaming the structures before the fire front arrives is especially beneficial when crews will not be able to remain onsite to provide protection.

OUTLINE	AIDS & CUES

When time permits, applying several coatings of foam on the structure will allow the moisture within the foam to penetrate porous materials. The action of the surfactant in foam lets water that would normally run off penetrate and stay with the fuel.

When applying foam to a structure in the path of an approaching wildfire, timing is critical. Foam applied too early to the structure may not have the durability to provide optimum protection; begin the foaming operation too late, and firefighters may not get all structures coated, or worse, may not be able to escape an area before the flame front hits.

Class A foam can also be used to coat fuel tanks. Foam clinging to the sides of these tanks will insulate them and protect them from direct flame contact. However, Class A foam is not intended to be used on flammable liquid fires. When any flammable liquids or other hazardous materials are involved with fire, vacate the area, report it, and allow firefighters trained in hazardous materials to handle the situation.

Class A foam:

1. Is a proven technique for protecting structures

OUTLINE	AIDS & CUES

2. Can be quickly applied to the structure using engines or portable tanks

3. Minimizes removal of ornamental landscaping and fireline construction. Foam can be used to insulate landscape vegetation around the structure.

4. Maximizes firefighter safety. Crews can move to safety zones until fire front passes, then return to conduct any needed mop up.

C. Fire Gel

Fire-retardant gels are super absorbent polymers and can be used for structure protection, aerial retardant drops, and direct attack applications on the fireline. However, gels are not usually stocked within the National Fire Equipment Cache system.

The mechanism by which these gels work is simple. The polymer in gels soaks up hundreds of times their weight in water, creating millions of tiny drops of water surrounded by and protected by a polymer shell.

Gels can provide thermal protection from fire for extended periods.

OUTLINE	AIDS & CUES

After the retained water is completely evaporated from a gel, fire resistance is lost.

Fire gels applied to a structure have the following favorable characteristics:

- Gel adheres to the underside of decks and projecting eaves.
- Will adhere to exterior windows and insulate them.
- Lasts at a minimum 6–8 hours, with a maximum of 36 hours.
- Are easily applied.
- Can be rehydrated by applying a light mist of water.
- Can also be applied from both fixed and rotary wing aircraft.

D. Structure Wrap

Structure wrap is available from commercial vendors and the fire cache under various trade names. It comes in rolls approximately 3 feet wide by 300 feet long and is made from similar material as the fire shelter. Structure wrap can be reused if care is taken when removing it from the original application.

The time-consuming nature of applying wrap to structures tends to limit its use to smaller, high-value sites (e.g., historical or cultural sites).

OUTLINE	AIDS & CUES
V. INTERIOR PREPARATION AND OTHER CONSIDERATIONS	Slide 7-13
A. Interior Preparation	
1. Close windows.	
2. Close any non-flammable window coverings such as blinds, shades, and drapes.	
3. Close interior doors to limit fire spread should the interior become involved.	
4. Turn off fans and swamp coolers that may allow embers into the structure.	
5. Turn off gas (liquefied petroleum gas [LPG] or natural gas) at the source.	
6. Leave electricity ON to run pumps, provide lighting, etc.	
7. Leave a porch light on and a central interior light to provide visibility in dark, smoky conditions. Patrolling engines will more easily notice the house, and firefighters entering it will have some light.	
8. Make sure essential doors can be opened. Close but don't lock all doors.	

OUTLINE	AIDS & CUES
9. Leave a note for the homeowner describing in what condition you have left the structure (e.g., utilities, pets, etc.).	
Discuss authority and policy for firefighters to enter homes. Refer students to the State of California Office of Emergency Services (OES) letter.	
B. Private Vehicles	Slide 7-14
Vehicles that remain onsite can be positioned and protected to minimize damage and be out of the way.	
1. Position vehicles in a sheltered location, away from heat and firebrands.	
2. Make sure vehicles will not interfere with the movement of fire equipment.	
3. Do not park vehicles on top of flammable vegetation. If flammables are in the area, spray a foam blanket around and underneath the vehicles.	
4. Park vehicles headed out, if possible, with the keys in the ignition.	
5. Close the doors and windows of vehicles, but do not lock them.	

OUTLINE	AIDS & CUES
C. Pets and Livestock After Hurricane Katrina, the Pets Evacuation and Transportation Act (PETS) of 2006 was signed into law. The PETS Act requires state and local emergency preparedness operational plans to take into account the needs of individuals with household pets and service animals before, during, and after a disaster. Generally, animals, which have the ability to do so, will manage to avoid being burned. However, if they are fenced or chained they may need to be freed by responders. Troublesome or frightened pets might need to be placed in the garage, residence, or other enclosure. If a large problem with pets or livestock is encountered, call for assistance from the local animal control agency.	Slide 7-15
VI. FOLLOWUP AFTER THE FIRE PASSES Once the fire front or major heat wave has passed your position, your job is not yet completed. Nothing would be more frustrating than defending a structure from the heat, smoke, and flames of the fire front, or leaving to assist another company or crew and returning only to find the first structure totally consumed from a hidden spark. Don't let a desire to move with the fire front overpower the obligation to finish the job at hand. Your initial concern should be the structures you were assigned to protect.	Slide 7-16

OUTLINE	AIDS & CUES

A. Check the structure for fire at likely ignition points.

1. You must check the exterior of the structure for sparks or embers at:

   - Roofs
   - Siding
   - Under eaves and in rain gutters
   - Vents
   - Under decks and porches
   - Wood piles

2. Check for heat or flame intrusion into the interior.

   - Attics
   - Curtains or windows
   - Furniture
   - Carpets
   - Wall
   - Cupboards
   - Ducts

OUTLINE	AIDS & CUES
B. While adhering to your agency policy, only perform enough suppression, mop up, or overhaul to ensure structure safety before moving to other structures. • Complete extinguishment of any fire in or on the structure. • Provide a positive barrier between a surface fire and the structure. • If the owners are present, instruct them as to what they can do to continue protection and mop up. • Leave all homeowners' ladders and garden hoses in place and ready to use.	
C. Things to do before leaving the area: 1. Provide for patrol. 2. Leave a note on the door or entry telling occupants: • What you did with the utilities • What happened to pets, if any • Who entered the home and why • Your contact information, and the date and time you were there	Slide 7-17

OUTLINE	AIDS & CUES
3. Leave a few lights on or flag the area so patrol crews can locate the structure in low visibility. 4. Secure the structure as you found it. D. Patrol duties include: • Preventing further losses • Assisting and instructing homeowners as to effective mop up procedures • Maintaining a high visibility to the homeowner Remember to practice positive public relations in an attempt to leave the public with positive feelings. If possible, leave a crew that worked in the area that has some knowledge of the work accomplished. Keep a good record of damage caused by fire suppression action.	
ADMINISTER EXERCISE: South Dakota – West Rim Fire (IR 7-1 and SR 7-1). The exercise will illustrate the decisionmaking process. In groups, have students work through the exercise and then discuss their solutions on their flip chart.	Slide 7-18 through Slide 7-30 IR 7-1 SR 7-1

OUTLINE	AIDS & CUES
VIII. CONCLUSION Interface fires vary in complexity from involving a single uninhabited structure to involving thousands of occupied primary dwellings. However, the strategies and tactics contained herein will apply to any interface incident. As incidents wind down, firefighters must maintain their vigilance while on patrol. Heat may remain undetected for days near a structure and only be noticed when it has found a pathway and ignited the structure.	Slide 7-31
Review Unit Objectives.	Slide 7-32

EXERCISE: South Dakota – West Rim Fire

Purpose: Students will make structure triage, strategy, and tactical decisions based on given information.

Time: 30–45 minutes

Materials Needed:

PowerPoint Slides 7-18 through 7-30
Flip chart or white board with markers
Map
Incident Response Pocket Guide

Preparation: Instructors should review the exercise objectives and scenario below and the PowerPoint slides before presentation. If a local scenario is used, thoroughly develop and review materials and presentation medium (e.g., audio and/or video) before presentation.

Instructions: Divide students into small groups or have them work individually. There is no right or wrong answer.

Instructor Objectives

- **Facilitate scenario for students by using animation and hardcopy of scenario.**
- **Facilitate scenario by role playing as Incident Commander Type 4 onscene.**
- **Facilitate scenario discussion during and after group presentation on main unit objectives:**
  - Initial operations upon arrival on incident (evacuation, traffic, homeowners, hazards, etc.)
  - Preparing structures and surrounding areas
  - Structure protection tactics

Step 1: You will be playing the part of the Single Resource ICT4. Divide students into groups of 4 to 5 per group. Read West Rim Structure Tactics Scenario to students and present **STAGE 1** of scenario. Stress area conditions and weather. Stress that students use structure protection strategy and tactics learned in this unit to complete the scenario.

Step 2: Inform students that the IC is located near the fire perimeter and the students (E-681 must go to the threatened structures and report back).

Step 3: As the IC, give students a briefing. Ask students (in groups) to develop a structure protection and evacuation plan. Have students develop a resource needs list based on the limited information at hand.

Step 4: Allow students 5 minutes to start developing a plan. As their plan is developing inform them a local sheriff has arrived on scene and is offering their services.

Step 5: Advance fire growth perimeter to **STAGE 2**.

Step 6: Inform students that fire dispatch is requesting an update. Instruct students to formulate an update for dispatch.

Step 7: Inform students that seven horses are discovered in a corral near the 661.1 and U010160 intersection. How will that affect tactics? What is their operational plan?

Step 8: Advance fire growth perimeter to **STAGE 3**.

Step 9: At 15 minutes, advance fire growth perimeter to **STAGE 4** and point out spot fires. Ask students how this will affect their operational plan.

Step 10: As fire behavior increases have the students review their operational plan and ask if it is still valid?

Step 11: Allow students enough time to work through the scenario. At any point inform students that residents of the third to last house on the U010160 road refuse to evacuate. Ask students what course of action they should take. At 25 minutes, end the exercise.

Step 12: Have each group present their plan, and instructor facilitate a discussion on:

- Initial operations upon arrival on incident (evacuation, traffic, homeowners, hazards, etc.)
- Preparing structures and surrounding areas
- Structure protection tactics
- Resource order

Structure Tactics Scenario

Name: West Rim Fire
Location: Black Hills National Forest
Date and Time: July 10 at 1300
Fuel Type: Ponderosa pine with intermixed scrub bur oak and aspen and birch stands
Fuel Models: 2 and 9
Area Conditions: Regional Preparedness Level 3.
Forest Preparedness Level 4.
Heavy initial attack activity.
Energy Release Components are in the 90th percentile.

Fuels: 1 hr: 4
10 hr: 6
100 hr: 11%
1000 hr: 14%

Weather:
1300 hours: Temp: 89 °F
Relative Humidity: 22%
Wind: East to Southeast 5–10 mph with gusts to 15 mph
Predicted: Temp: 97–100 °F
Relative Humidity: 10–15%
Wind: East to Southeast 5–15 mph with gusts to 20 mph

Synopsis:

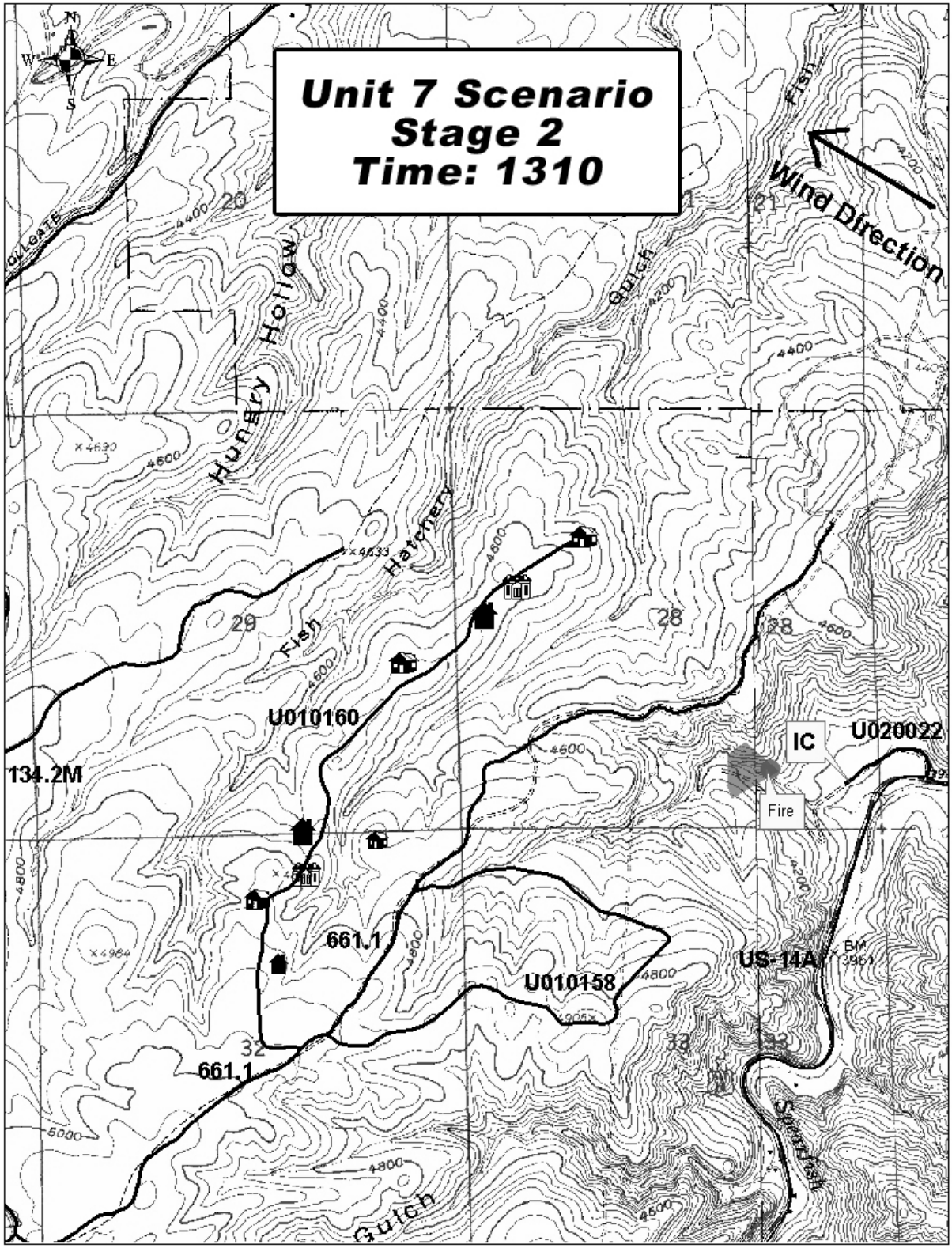
You are a USFS Type 6 Engine Captain E-681. You have been dispatched to a smoke report. During your travel time en route, you notice on the map that the fire is approximately 1 mile east of Aspen Hills subdivision. A Single Resource IC Type 4 is on scene. He has instructed you to report to the subdivision. You arrive in the Aspen Hills Subdivision. The smoke column is building quickly, and you estimate the fire to be 5 acres at this time.

A USFS Type 3 Engine E-381 and a Spearfish VFD Type 2 Engine (E-2) has also been dispatched and have ETA of 10 minutes to the incident. The West Rim Fire is the only incident on the Zone at this time.

Resources Available:

City: 1-Spearfish VFD Type 1 Engine (E-1)
Federal (USFS): 2-Type 6 Engines (E-611, E-682)
Federal (USFS): 1-Type 2, 10-person handcrew
Aerial Resource: 1-Type 2 Helicopter (4EV)
Local sheriff with vehicle

Use the structure protection strategy and tactics learned in this chapter to successfully accomplish this scenario.


Unit 7 Scenario
Stage 2
Time: 1310
Wind Direction
Hungry Hollow
Gulch
Fish
Hatchery
U010160
134.2M
IC
U020022
Fire
661.1
661.1
U010158
US-14A
Gulch
Spearfish

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 8 – Tactical Operations and Resource Use in the Interface

Time 1 hour

Objectives

1. Identify tactics employed in confronting a fire at a structure.
2. List tactical uses of different resources at an interface incident.
3. Given a firing operation in the interface, list methods used to protect structures.

Strategy

Using a combination of lecture, exercises, and written reference materials, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture and discussion with PowerPoint presentation

Instructional Aids

□ Computer with LCD projector, presentation software, and screen

Exercise(s)

- None

Evaluation Method(s)

- None

Outline

I. Introduction

II. Confronting the Fire at the Structure

III. Tactical Use of Resources

IV. Firing Operations

V. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 8 – Tactical Operations and Resource Use in the Interface

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 8-1
Present Unit Objectives.	Slide 8-2
This lesson can be modified (condensed, expanded, covered in more detail, etc.) to meet the needs of the geographic area and student target group.	
I. INTRODUCTION	Slide 8-3
Deciding which tactics to employ requires consideration of the fire environment, the structure's defensibility, and resource availability. Remember that as the fire environment or resource availability changes, the tactical choices may have to change as well.	
II. CONFRONTING THE FIRE AT THE STRUCTURE	Slide 8-4
A. Action Within the Spotting Zone	
When firebrands are the major problem, and the fire front has not arrived, the focus should be on the receptive fuels in and on the structure. The threat from firebrands may begin well before the fire front arrives and may continue long after the fire front passes.	

OUTLINE	AIDS & CUES

Always maintain some level of maneuverability within your area of responsibility. This will allow quick reaction to new ignitions with the minimum response required. Keep in mind that you may have to reset operations and move to another area of concern.

Constantly check for new ignitions in receptive fuels like woodpiles, needle or leaf cast on the structure, etc.

B. Full Containment Around the Structure

If the fire environment allows, perform direct full containment around the structure by constructing a control line to separate the advancing fire front from receptive fuels around the structure.

If the fire environment will not allow a direct suppression action, construct an indirect containment line around the structure and either allow the fire to burn into the containment line or secure the area through a backfiring operation.

C. Partial Containment Around the Structure

If full containment is not possible, focus the effort to minimize the impact of the fire front on the structure as much as possible. Once the fire front passes and conditions allow, manage any remaining exposures or vulnerabilities from the passing fire front while paying close attention to any receptive fuels.

OUTLINE	AIDS & CUES
D. No Containment Around the Structure Regardless of the reason, if the decision is made that the fire cannot be suppressed, return to the structure when appropriate to evaluate the status of the structure and take suppression actions if needed or if the structure is still savable.	
III. TACTICAL USE OF RESOURCES	Slide 8-5
A. Hand Crews Hand crews can be a very effective suppression resource during an interface incident. In general, hand crews can support operations during any phase of an incident. Hand crews are organized by the Incident Command System (ICS) type that relates to the level of experience and capabilities of the crew. Hand crews can be used to accomplish the following: • Construct hand line • Site and structure preparation • Support engine crews • Set up and operate hose lays • Act as ground contacts for aviation resources	

OUTLINE	AIDS & CUES
• Conduct burnout and backfire operations • Assist in mop up and patrol	
Because hand crews vary in experience and capabilities, check with the crew boss to ensure the assignment matches up with the crew's capabilities.	Slide 8-6
B. Aircraft	Slide 8-7
Air tankers, helicopters, and small fixed-wing aircraft can be very valuable in interface fires. Aircraft use must be closely coordinated with ground units in order to be effective and safe in all aspects of utilization. Fires in the interface are considered to be in congested areas and require adherence to Federal policy. Consider requesting incident aerial supervision and a temporary flight restriction if criteria are met.	
Aerial supervision platforms, air tankers, and helicopters can be very effective on interface incidents. However, if aviation resources are improperly used, they can be a serious hazard to the public and ground resources.	Slide 8-8

OUTLINE	AIDS & CUES

Consider the following regarding the tactical use of aircraft in the interface:

1. Interface hazards

   The following hazards to aircraft are often associated with interface incidents:

   - Dense smoke and poor visibility for aviation resources
   - Power lines (may have to be deenergized)
   - Antennas
   - Tall buildings
   - Non-incident or media aircraft
   - Propane tanks, which can vent to high altitudes

2. Ground safety

   Interface incidents often have many citizens and homeowners scattered through the operations area. This can seriously impair tactical air operations and expose ground personnel to extreme risk.

OUTLINE	AIDS & CUES
3. Effectiveness of resources As urbanization increases, tactical effectiveness decreases. It becomes more critical that air tanker and helicopter drops be closely supervised to prevent inadvertent drops on non-incident persons and unnecessary damage to improvements. • Minimize risk to people and improvements. • Provided there is an adequate water source, the Type 1 helicopter, with its maneuverability, drop accuracy, and quick turn-around time, is the best resource in the classic occluded urban interface. • Drops are generally not effective on structures that are burning beyond the initial start phase or if the fire is inside the structure.	
4. Interface tactical planning principles Apply the following principles in developing the tactical plan and making air resource assignments.	Slide 8-9

OUTLINE	AIDS & CUES

These need to be communicated to aerial and aerial supervision resources:

- Assess the situation and do the following:
  - Identify air operational hazards.
  - Locate non-incident people in the operations area.
  - Protect evacuation routes.
  - Triage structures.
  - Identify possible dip sites and portable retardant plant sites.
  - Determine how air resources can best support suppression objectives.
- Request that electrical transmission lines be deenergized. Don't assume that they will be. Warn ground personnel not to be under or near power lines during drops.
- Determine where air tankers or helicopters can be most effective.

OUTLINE	AIDS & CUES
• Recommend location of portable retardant or water dip sites. • Use air tankers in areas where visibility, hazards, flight routes, crowd control, and target selection ensure reasonable effectiveness and acceptable risk. • Use helicopters on targets requiring more maneuverability and accuracy under conditions that would preclude safe and effective air tanker operations. • Avoid transfer of risk from ground to aviation resources by placing pilots in hazardous situations without accurate risk assessment or support. Use any available aerial supervision resources (i.e., Air Tactical Group Supervisor or Aerial Supervision Module) to not only manage aviation resources, but to assist in creating strategy and tactics. However, do not rely on these aerial supervision platforms to act as lookouts, as higher priority incidents or emergency situations may require them to be diverted from your incident.	Slide 8-10

OUTLINE	AIDS & CUES
C. Heavy Equipment	Slide 8-11
Heavy equipment can be very effective in interface operations. It can do work impossible to accomplish any other way or quickly build large amounts of fireline when in favorable terrain.	
As in conjunction with hand line, these control lines may be used with firing operations to additionally secure firelines.	
Water and/or retardant used in conjunction with heavy equipment during fireline construction can be very effective to stop or slow a fire's advance.	
Other uses of heavy equipment are to build access routes, construct safety zones, move yard debris, etc.	
However, with each different type of equipment, production and operational limitations must be observed.	Slide 8-12
1. Types of equipment	Slide 8-13
a. Dozers	
These large, full-tracked vehicles with a front-mounted blade are very effective for constructing wide firelines, moving heavy fuels, constructing roads, building safety zones, clearing helicopter landing areas, etc.	

OUTLINE	AIDS & CUES
b. Tractor plow Tractor plows are used primarily in the southeast by wildland fire protection agencies and are the primary firefighting tool. The tractor plow is very mobile, powerful, and reasonably fast in constructing firelines adjacent to improvements in advance of the approaching fire. Tractor plows can be used in conjunction with a firing operation to facilitate securing fireline. c. Farm tractors with discs Farm tractors with discs are common all over the United States in different configurations. They are efficient for line production in grass fuel types and can be used near improvements, resulting in less damage; however, discs are most effective in light fuels. d. Road graders Graders are limited by adverse terrain conditions. They are very effective in light fuels in flat topography and can be used for indirect attack around improvements.	

OUTLINE	AIDS & CUES
e. Logging equipment Logging equipment, which includes skidders, feller-bunchers, etc., can be very effective in site preparation, safety zone construction, or opening access roads.	
D. Engines	Slide 8-14
Generally speaking, structure protection will focus on engine operations. As engines come in many shapes and sizes, you must choose the correct engine type for the task. Based on our structure protection tactics, the ability to remain flexible in engine operations is critical in a dynamic environment.	
Refer students to the Water Delivery Information and ICS Typing for Engines and Water Tenders in the Incident Response Pocket Guide, and discuss appropriate uses of different engine types focusing on local resources.	
Each engine type has a different set of optimal operating conditions and safety considerations. Discuss with the engine supervisor the limitations of the equipment and whether it is appropriate for the assignment.	Slide 8-15

OUTLINE	AIDS & CUES
IV. FIRING OPERATIONS Firing operations can be a useful tool in the interface environment. However, inherent risks and liabilities exist when this tactic is used. An especially high level of experience in firing operations is encouraged when using this tactic in the interface. Firing operations involve the use of fire to conduct burnouts and backfires. It is important to understand the difference between the two. Ensure clear communication and coordination is maintained with adjoining divisions or personnel who may be affected by any firing operation.	Slide 8-16
A. Burning Out This is a tactic of setting fire inside a control line to consume fuel between the edge of the fire and the control line. Burning out is generally described as an action taken to strengthen and straighten control lines by eliminating fuel between the fire edge and the control line, and is considered direct attack. **It is generally accepted that operations personnel from crew boss and above have the authority to perform a burnout operation.**	Slide 8-17

OUTLINE	AIDS & CUES

B. Backfiring

This is a tactic of setting fire along the inner edge of a fireline to consume the fuel in the path of a fire or change the direction or force of the fire's convection column.

Backfiring is generally considered a method of indirect attack and used against the head of a rapidly spreading fire to:

- Consume the fuel in the path of a fire
- Change direction or force of the main fire's convection column
- Slow or change the fire's rate of spread

The decision for backfiring is usually made by the Operations Section Chief or an Incident Commander on a case-by-case basis.

Refer students to the Strategy – *Direct* Attack and Strategy – *Indirect* Attack sections of the Incident Response Pocket Guide.

Personnel assigned to firing and holding operations must be under the supervision of a qualified firing boss and have permission to perform the operation.

OUTLINE	AIDS & CUES
V. CONCLUSION	Slide 8-18
Every resource responding to an interface incident has different strengths and weaknesses. Some of these resources have very specific applications, whereas others can perform a wide variety of duties. Knowing the correct tool to use for the job and anticipating resource needs early to match an escalating or diminishing incident can greatly increase chances of operational success.	
Review Unit Objectives.	Slide 8-19

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 9 – Action Assessment, Plan Update, and After Action Review

Time 1 hour

Objectives

1. List the seven items that need to be considered in assessing the effectiveness of an action plan.
2. Given an action plan and scenario, demonstrate how to properly update the plan when the scenario changes.
3. Identify steps used in an After Action Review (AAR).

Strategy

Using a combination of lecture, exercises, and written reference materials, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture and discussion with PowerPoint presentation

Instructional Aids

☐ Flip charts

☐ Personal computer with LCD projector and presentation software

Exercise(s)

- Flame Incident
- Bald Hill Road Incident
- Click Street Incident

Evaluation Method(s)

- None

Outline

I. Introduction

II. Action Assessment

III. Updating the Action Plan

IV. After Action Review

V. Conclusion

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 9 – Action Assessment, Plan Update, and After Action Review

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 9-1
Present Unit Objectives.	Slide 9-2
I. INTRODUCTION	Slide 9-3
Now that you have initiated action on the fire, you need to continually update your situation awareness and the effectiveness of your actions, and update your plan accordingly. The need to seek and provide honest feedback on the effectiveness of tactics and strategy is critical to achieving successful outcomes and modifying your plan as needed.	
II. ACTION ASSESSMENT	Slide 9-4
Determine the success of your operations by comparing predictions and outcomes and the actual results of resources' performance measured against the objectives.	
These procedures should be continually performed during operations as a means to update your action plan to the changing fire environment.	
• Is the initial strategy valid, and are your tactics effective?	

OUTLINE	AIDS & CUES
• Are specific timeframes being met, or are tasks taking longer than expected to achieve? • Are your resources adequate for their assigned tasks to meet objectives? • Evaluate observed weather; is it the same as what was forecast? • Evaluate observed fire behavior; is it what was expected? • Is communication effective and adequate for the situation? • Are management action points and/or trigger points identified and acted upon in a timely manner? The preferred way to determine and validate the above factors is through personal observation. However, this is not always possible in a dynamic environment. Therefore, it is critical that you have open and honest communications with your subordinates, superiors, and other assigned personnel. It is recommended that you establish a system that ensures timely and appropriate feedback from your resources. As part of your assessment, do not overlook adequacy of your support. Also do not overlook any rehabilitation needs of personnel and equipment that may have surfaced.	Slide 9-5

OUTLINE	AIDS & CUES
Consider and evaluate the following items: • Food • Potable water • Rest and sleep • Equipment support • Facilities • Fuel Your assessment should be candid and objective and focus on processes that gain desired results.	
III. UPDATING THE ACTION PLAN	Slide 9-6
Now that the assessment is complete, the next course of action is to update your action plan. No assessment or update of a plan is worthwhile unless the safety of the public and firefighters is the number one consideration. • Ensure the update reflects and takes into account observed and predicted fire behavior. • Adjust the incident priorities, strategic goals, and tactical objectives (specific work assignments, evacuation orders, or methods of suppression). • Consider the effect any updates to the plan are going to have on property owners, homeowners, and the community at large.	
• Adjust resources as appropriate.	Slide 9-7
• Update any maps to reflect changes.	

OUTLINE	AIDS & CUES
• Ensure that subordinates, superiors, communications center, and other agency cooperating personnel are informed of changes, and that those changes are documented.	
ADMINISTER EXERCISES: Flame Incident, Bald Hill Road Incident, and Click Street Incident. **Instructors should use local scenarios or previous incidents when possible and customize the exercises for the local area.**	Slide 9-8 IR 1-1 through IR 1-3 SR 1-1 through SR 1-3
IV. AFTER ACTION REVIEW The after action review is a reconstruction of the incident to assess the chain of events, the methods used, and the actual results of your operations. Address and analyze both the positive and the negative results of your actions. Reinforce that respectful disagreement is acceptable, but maintain focus on *what* happened, not *who* did or didn't do something. After action reviews should be done at all levels of the incident organization.	
Refer students to the After Action Review section in the Incident Response Pocket Guide.	
1. What was planned? 2. What actually happened? 3. Why did it happen? 4. What can we do next time? 5. Document your successes as well as your failures.	

OUTLINE	AIDS & CUES
V. CONCLUSION It is important to continually evaluate your plan, analyze the effectiveness of your actions and make changes as necessary. Avoid getting stuck on a particular course of action. The need to seek and provide honest feedback on the effectiveness of tactics and strategy is critical to achieving successful outcomes.	Slide 9-9
Review Unit Objectives.	Slide 9-10

EXERCISE: Flame Incident

Purpose: Students will read the scenario and answer questions that follow.

Time: 10 minutes to complete and 10 minutes to discuss

Materials Needed: The scenario was designed to be presented simply on paper or more elaborately as a tactical decision game with additional teaching aids.

Preparation:

1. Review the scenario before presentation and determine how elaborately to present the scenario.

2. Gather supporting materials as needed (i.e., sand table, GoogleEarth, etc.).

Instructions:

1. The scenario can be presented as a group, small group, or individual exercise. Divide class as necessary.

2. Present the scenario in the desired format, allowing students to work through it with minimal instructor input.

3. Generally, there is no right or wrong answer, but students must be able to defend their decisions using accepted practices and considerations for safety.

Key points for discussion:

1. **Strategy and tactics**
2. **Work assignments**
3. **Resource placement**
4. **Resource orders**
5. **Weather forecast**

Scenario:

You've made initial attack on a wildland fire with two engines. The preferred course of action is to anchor, flank, and pinch off the head. Three more engines are en route and will arrive in about ½ hour. You plan to use them for mop up if things go as planned. Just as you are about to hook the fire, the wind comes up and the fire makes a major run at nine structures ½ mile away.

Review the Incident Briefing form (ICS 201) on page 9.11.

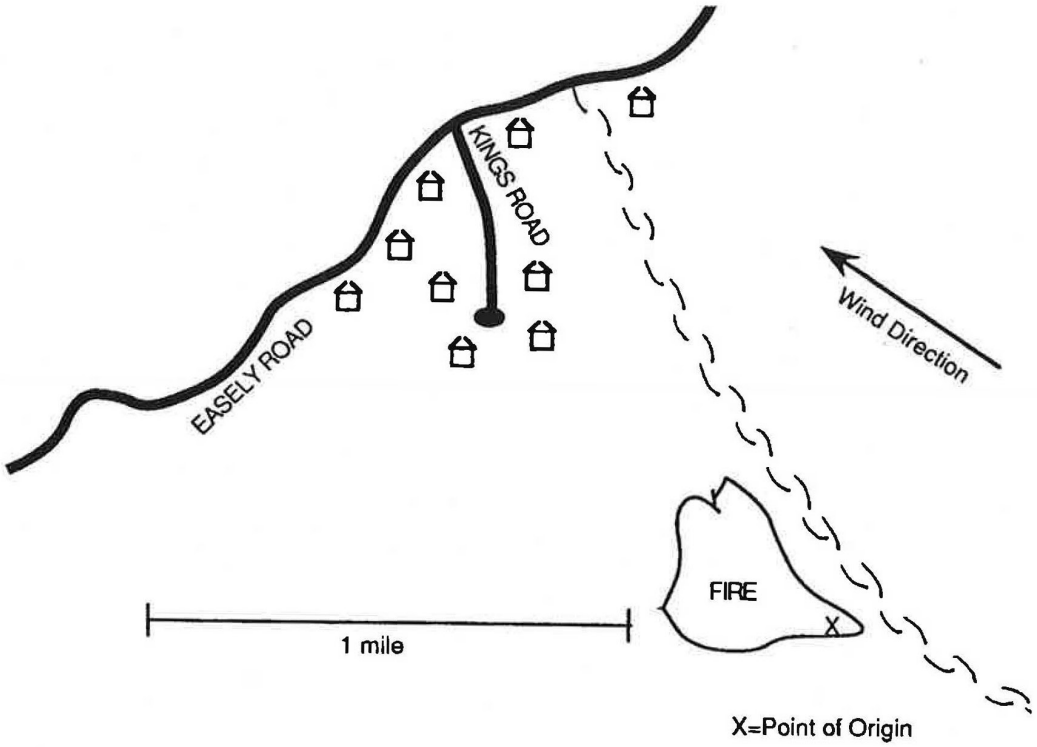
Questions:

- Is the initial action plan still valid?

- If not, what changes would you make and what other things would you consider?

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
	Name	*7 Jul XX*	*1400*

4. MAP SKETCH



5. PREPARED BY (NAME AND POSITION)

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EXERCISE: Bald Hill Road Incident

Purpose: Students will read the scenario and answer questions that follow.

Time: 10 minutes to complete and 10 minutes to discuss

Materials Needed: The scenario was designed to be presented simply on paper or more elaborately as a tactical decision game with additional teaching aids.

Preparation:

1. Review the scenario before presentation and determine how elaborately to present the scenario.

2. Is there a local option better suited for the exercise?

3. Gather supporting materials as needed (i.e., sand table, GoogleEarth, etc.).

Instructions:

1. The scenario can be presented as a group, small group, or individual exercise. Divide class as necessary.

2. Present the scenario in the desired format, allowing students to work through it with minimal instructor input.

3. Generally, there is no right or wrong answer, but students must be able to defend their decisions using accepted practices and considerations for safety.

Key points for discussion:

1. **Communications to supervisor.**
2. **Assistance provided to Bald Hills.**
3. **Leave an engine behind.**

Scenario:

You've made initial attack on a wildland fire with a tractor-plow unit. The preferred course of action is to attack the head of the fire. Three wildland engines are onscene and are preparing to defend structures south of the fire. A second tractor-plow unit and a fourth engine have been ordered for backup.

Refer to forms ICS 201 (Incident Briefing) and ICS 202 (Incident Objectives) on pages 9.15 and 9.16, which show a hand-drawn map and incident objectives.

You have now been in the Fish Creek drainage for 2 hours. You have made significant progress, and all structures are secured. In a matter of minutes, wind causes the fire to make a major run across the drainage and blows by your position. Your initial assessment indicates that all structures to the south remain secure. You hear from your lookout that structures to the north on Bald Hills are threatened and need assistance. Some may already be involved.

Questions:

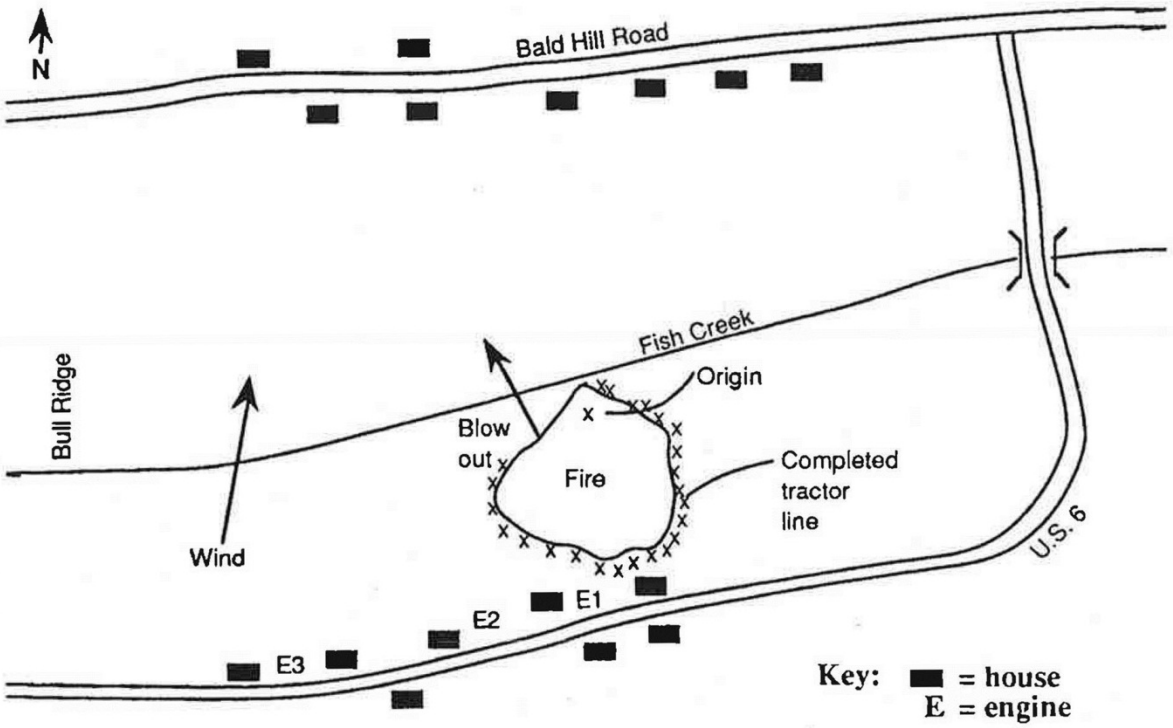
- Are your instructions in the Incident Action Plan still valid?

- What further assessments do you make at your location, and what is your next course of action?

INCIDENT BRIEFING

1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
Bald Hill Road	*7 Jul XX*	*1400*

4. MAP SKETCH



5. PREPARED BY (NAME AND POSITION)

201 ICS (1/99) NFES 1325

INCIDENT OBJECTIVES

1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
Bald Hill Road	*7 Jul XX*	*1400*

4. OPERATIONAL PERIOD (DATE/TIME)

5. GENERAL CONTROL OBJECTIVES FOR THE INCIDENT (INCLUDE ALTERNATIVES)

1. Provide for safety of firefighters and public.
2. Protect structures in Fish Creek drainage.
3. Keep fire east of Bull Ridge.
4. Keep fire west of Highway 6.

6. WEATHER FORECAST FOR OPERATIONAL PERIOD

7. GENERAL SAFETY MESSAGE

8. ATTACHMENTS (✓ IF ATTACHED)

- ☐ ORGANIZATION LIST (ICS 203)
- ☐ ASSIGNMENT LIST (ICS 204)
- ☐ COMMUNICATIONS PLAN (ICS 205)
- ☐ MEDICAL PLAN (ICS 206)
- ☐ INCIDENT MAP
- ☐ TRAFFIC PLAN
- ☐ _____
- ☐ _____
- ☐ _____

9. PREPARED BY (PLANNING SECTION CHIEF)	10. APPROVED BY (INCIDENT COMMANDER)

202 ICS (1/99) NFES 1326

EXERCISE: Click Street Incident

Purpose: Students will read the scenario and answer questions that follow.

Time: 10 minutes to complete and 10 minutes to discuss

Materials Needed: The scenario was designed to be presented simply on paper or more elaborately as a tactical decision game with additional teaching aids.

Preparation:

1. Review the scenario before presentation and determine how elaborately to present the scenario.

2. Is there a local option better suited for the exercise?

3. Gather supporting materials as needed (i.e., sand table, GoogleEarth, etc.).

Instructions:

1. The scenario can be presented as a group, small group, or individual exercise. Divide class as necessary.

2. Present the scenario in the desired format, allowing students to work through it with minimal instructor input.

3. Generally, there is no right or wrong answer, but students must be able to defend their decisions using accepted practices and considerations for safety.

ANSWER KEY:

1. **Adjust to additional time; can all structures be protected now?**
2. **Go out and get the fire.**
3. **Place appropriate orders; e.g., 4x4 engines.**
4. **Weather forecast.**

Scenario:

You are the initial attack Incident Commander on a fire that has broken out in a subdivision. You have determined that 12 out of 18 structures are defendable. You have 10 wildland engines at your disposal. You decide that time does not permit you to go out and attack the fire. You commit all 10 engines to the defensive mode. Engines are in place with hose lines laid when the wind stops. The fire dies down and is just barely creeping.

Review the Incident Briefing form (ICS 201) on page 9.19.

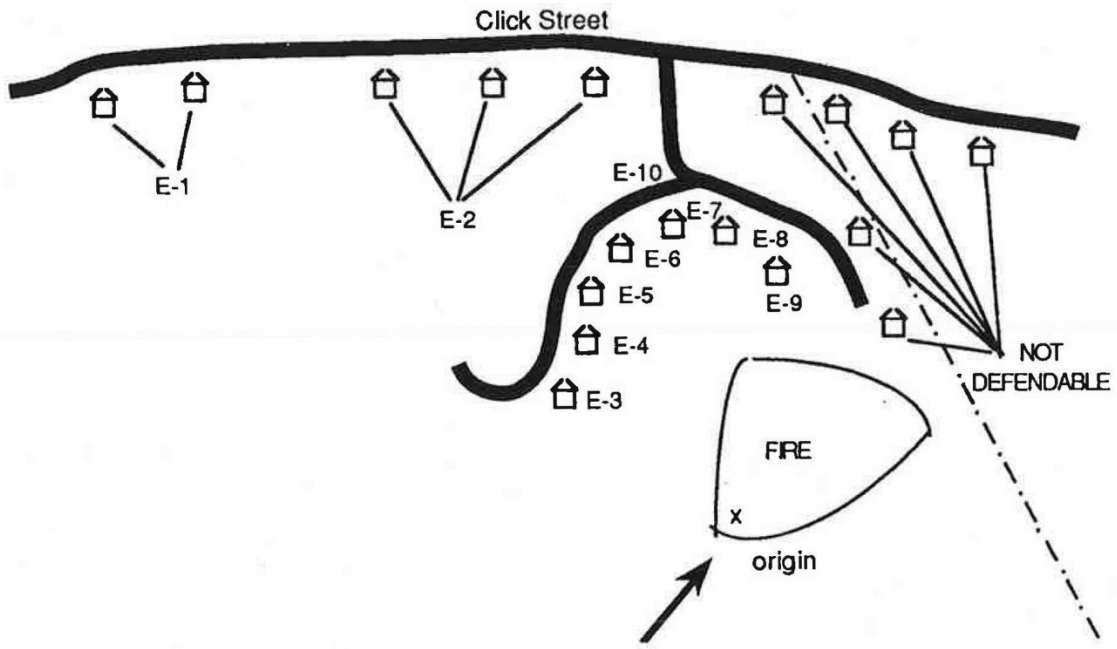
Questions:

- What is your thought process as you assess the situation?

- Explain the steps you would take in logical order in updating your incident action plan.

INCIDENT BRIEFING	1. INCIDENT NAME	2. DATE PREPARED	3. TIME PREPARED
	Click Street	*29 Jul XX*	*1400*

4. MAP SKETCH



5. PREPARED BY (NAME AND POSITION)

201 ICS (1/99) NFES 1325

UNIT OVERVIEW

Course Fire Operations in the Wildland/Urban Interface, S-215

Unit 10 – Final Evaluation and Optional Field Exercise

Time 1 hour

Objectives

1. Instructor will facilitate a review of the course.
2. Instructor will explain the final exam process.
3. Participate in a field exercise to reinforce material covered in the classroom session (optional).

Strategy

Using a combination of lecture and discussion, instructor will lead students through a discussion.

Instructional Method(s)

- Lecture and discussion with PowerPoint presentation

Instructional Aids

□ Computer with LCD projector and presentation software

Exercise(s)

- Optional Field Exercise

Evaluation Method(s)

- Final Exam

Outline

I. Course Review

II. Skills To Be Tested

II. Written Exam Format

IV. Optional Field Exercise

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 Fire Operations in the Wildland/Urban Interface, S-215

Unit 10 – Final Evaluation and Optional Field Exercise

OUTLINE	AIDS & CUES
Unit Title Slide.	Slide 10-1
Present Unit Objectives.	Slide 10-2
I. COURSE REVIEW	
A. Course Objective Operate safely and effectively in a wildland/urban interface incident by using situation awareness, performing structure triage, using pre-planning tools, having a basic understanding of fire behavior, and using strategy and tactics unique to the wildland/urban interface environment.	
B. Instructional Units	Slide 10-3
Unit 1 Firefighter Safety in the Interface Unit 2 Managing Human Factors in the Interface Unit 3 Pre-Incident Planning Unit 4 Sizeup and Initial Strategy Unit 5 Structure Triage Unit 6 Structural Protection Overview Unit 7 Tactics in the Interface Unit 8 Tactical Operation and Resource Use in the Interface Unit 9 Action Assessment, Plan Update, and After Action Review	

OUTLINE		AIDS & CUES
II.	SKILLS TO BE TESTED Through multiple choice, true or false, matching, and fill-in-the-blank questions, the student will demonstrate an ability to apply content contained in the course. This demonstration will include a written exam and, at the instructor's discretion, an exercise set in an interface scenario.	
III.	WRITTEN EXAM FORMAT The student may use any materials provided during the course instruction as reference while taking the exam, and must obtain a score of 70% or higher to pass the course and receive credit. One (1) hour is allotted for the student to take the written portion of the exam. Exams will be collected by the cadre at the end of the hour.	Slide 10-4
IV.	OPTIONAL FIELD EXERCISE The format for the optional field exercise will vary from location to location (see Optional Field Exercise, IR 10-1), as each unit may have a slightly or widely different interface environment. The grading system for the exercise is a weighted system, with the following percentages placed on specific course subjects: Firefighter Safety – 30% Sizeup and Initial Strategy – 20% Structure Triage – 20% Tactics in the Interface– 25% After Action Review – 5%	Slide 10-5 IR 10-1

OUTLINE	AIDS & CUES
Subjectivity of grading: • **Create the scenario well in advance of class to identify testable and measurable goals or objectives for the students during the scenario.** • **Using the weighted scale above, assign possible points available to the objectives or goals set forth in the scenario. For example, correctly determining and assigning a value to a structure during triage is worth XX points.** • **As Firefighter Safety is paramount, establish measurable and testable actions or decisions the firefighter must achieve to demonstrate that they know the wildland/urban interface safety principles outlined in the course.**	
Review Unit Objectives.	Slide 10-6
Any questions?	Slide 10-7

OPTIONAL FIELD EXERCISE

Purpose: The purpose of the field exercise is to give students experience with participating in structure triage with implementation of acceptable strategy, tactics, and risk management. Students will be evaluated by instructors during the field exercise (30 points).

Time: 4–8 hours

Exercise Preparation:

1. Tailor the field exercise to meet the needs of the local area.

2. Allow plenty of time to plan and set up the field exercise.

3. The field exercise must address the following:

    - Local protocol
        - Environmental concerns
        - Responding agencies
        - Resource availability
        - Local standard operating procedures (SOPs)
    - Accurately perform structure triage
        - Construction
        - Clearance
        - Topography
        - Fuels

- Accurately perform risk management
  - Firefighter safety
  - Civilian safety
  - Hazmat
- Tactical considerations
  - Water availability
  - Access
  - Communications

4. Determine how to organize the field exercise. There are numerous methods to consider; some examples include:

   - Learning stations are an excellent way to teach students. They usually require an instructor for each learning station, but not always. Students are assigned to small groups, and each group rotates through the station. There are numerous examples of how learning stations can be set up, for example:
     - Choose a few different structures with varying degrees of defensibility. At each structure, students go through a triage checklist.
     - Have different locations chosen ahead of time with key safety issues or concerns. At each location, students will note concern and mitigation procedures, if any.
   - Simulating an incident is another excellent way to set up a field exercise; however, it does require more planning, coordination, and resources. Flag critical features (e.g., river, hill, road, fire) of the incident. Simulation can start with a briefing from the Incident Commander or crew boss – in the briefing, the students are instructed on what to do.

5. Make logistical arrangements, such as:

    - Find appropriate site for field exercise (transportation time to and from site, water supply source, environmental considerations, and so on).

    - Obtain all equipment and supplies.

    - Transportation to and from site.

Exercise Instructions:

1. One day before administration of the field exercise, present a general overview of the field exercise so students can be prepared. This overview should address:

    - Schedule and logistics.

    - What students should bring – Wear full PPE, and bring IRPG and Student Workbook.

    - Review objectives with students:

        – Demonstrate appropriate risk management activities, such as wearing PPE (including ear and eye protection as appropriate).

        – Participate in structure triage exercise.

2. Discuss the evaluation method. Refer students to their Student Workbook (SW, page 10-4), and discuss the criteria and total points for the field exercise.

3. Divide students into small groups, and give directions on where they should go.

4. Instructors should demonstrate proper procedures, and then allow students to practice.

5. When the exercise is completed, instructors should conduct an After Action Review (AAR) before evaluating students.

6. Instructors evaluate students, enter points on the Field Exercise Final Exam, determine total score on final exams (classroom Final Exam plus Field Exercise Final Exam), and return exams to students.