

*2008 Fireline Safety Refresher Training  
Facilitator Guide*



*The Changing Fire Environment*



Mission Statement:

The intent of annual fireline safety refresher training is to focus line-going personnel on operations and decision-making issues related to fireline and all-hazard incident safety. Refresher training will ensure firefighters have information regarding current initiatives, the upcoming fire season, and any policy/guidance changes. Refresher training is provided in order to recognize and mitigate risk, maintain safe practices, and to reduce accidents and near misses.

***<http://www.nifc.gov/wfstar/index.htm>***

# **Notes to Facilitator**

## ***Introduction***

This year's fireline safety refresher training, *The Changing Fire Environment*, is intended as an alternative delivery system for annual refresher training required for all personnel participating in fire suppression or prescribed fire activities who may be subjected to assignments on the fireline. Check specific agency policy to determine if this training package meets all refresher training requirements.

## ***Facilitator/Instructor Prerequisites***

Lead instructors must be at least Single Resource Boss (SRB) qualified, and unit instructors must be at least Firefighter Type 1 (FFT1) qualified or a subject matter expert on the material in the unit.

Instructors should facilitate a quality refresher that engages all students regardless of their ICS qualification or experience background. The success of this presentation is dependent on your ability to stimulate meaningful discussion during group exercises. This is not a plug-and-play product; student interaction is required. The core topics should be addressed in such a manner that is appropriate for the audience. Classes with a wide array of experience and qualification can be an excellent opportunity for the less experienced to be mentored and for the more experienced to rethink old habits.

## ***Student Prerequisites***

Students should have successfully completed S-130 and S-190 and have at least one season as a firefighter.

## ***Course Objective***

Upon completion of this training, the student will be able to understand and apply basic safety principles for wildland firefighting.

## **Course Components**

The course package consists of a video (VHS or DVD), Facilitator Guide, and Student Workbook.

## **Equipment and Materials**

A list of equipment and other material required for course presentation includes:

- Training room
- TV/VCR or DVD player
- Course package—VHS/DVD, Facilitator Guide, Student Workbook (print one workbook for each student). The Facilitator Guide and Student Workbook are available at [http://www.blm.gov/nifc/st/en/prog/fire/training/fire\\_training.html](http://www.blm.gov/nifc/st/en/prog/fire/training/fire_training.html)
- *Incident Response Pocket Guide*—2006 Version, NFES #1077; one for each student
- Sign-in sheet
- Paper and pencil for each student
- Flip chart(s) with paper and marking pens
- Optional: *Using Your Fire Shelter* video, NFES #1568
- Optional: *New Generation Fire Shelter* video, NFES #2711
- Optional: Internet access
- Optional: Belt weather kit, NFES #1050

## **Administration**

The facilitator is responsible for identifying necessary equipment, materials, and supplies. He/She is responsible for recording attendance and assuring that evaluations are completed and returned:

**BY MAIL:** NWCG Training Development  
Attn. Scott Anderson  
3833 S. Development Avenue  
Boise, ID 83705

**BY FAX:** (208) 387-5378

**BY E-MAIL:** [Scott\\_Anderson@nifc.blm.gov](mailto:Scott_Anderson@nifc.blm.gov)

If all modules are utilized, the length of this program is approximately six hours, depending on time allowed for exercises. Additional time will be needed for the fire shelter deployment practice.

## Course Modules/Topics

DESCRIPTION	DVD/VHS MINUTES	GROUP DISCUSSION/ EXERCISE	EXERCISE MINUTES	SWB PAGE
<b>Module 1 – Introduction</b>	3	<ul style="list-style-type: none"> <li>• Review:               <ul style="list-style-type: none"> <li>– Standard Firefighting Orders</li> <li>– Watch Out Situations</li> <li>– LCES</li> <li>– IRPG Sections</li> <li>– Risk Management Process</li> </ul> </li> </ul>	15-20	6 6 7 7 8
<b>Module 2 – Fire Behavior</b>				
<b>Part 1</b> <i>Mega Fires as Seen on 60 Minutes</i> (Optional)	12	<ul style="list-style-type: none"> <li>• Local fire behavior discussion</li> <li>• Look Up, Down, and Around Review</li> </ul>	10 Reference Only	9
<b>Part 2</b> Predicting Fire Behavior	13	<ul style="list-style-type: none"> <li>• The Upcoming Fire Season (Optional)</li> <li>• <i>Taking Good Weather Observations</i></li> <li>• Taking Weather Observation Demonstration or Practice (Optional)</li> </ul>	10-15 5 10-15	10
<b>Part 3</b> Upper End Fire Behavior	21	<ul style="list-style-type: none"> <li>• Group Discussion—Experiences with Unexpected Fire Behavior</li> </ul>	10	
<b>Module 3 – Human Factors</b>				
<b>Part 1</b> Decision Making	17	<ul style="list-style-type: none"> <li>• Leaders We Would Like to Meet—Ted Putnam</li> <li>• <i>Suggested Reading for Mindfulness (Insight) Meditation and the Underlying Psychology</i></li> <li>• Group Discussion – Mindfulness on the Fireline</li> </ul>	3 Reference Only 10	11 12 13
<b>Optional Break</b>				
<b>Part 2</b> Alabaugh Canyon Fire	38	<ul style="list-style-type: none"> <li>• Human Factors Barriers to SA and Decision Making Review</li> </ul>	Reference Only	13
		<ul style="list-style-type: none"> <li>• <i>Alabaugh Canyon Fire Entrapment and Shelter Deployment, Summary – Final Investigation Report</i> (Appendix C)</li> </ul>	3-5	14
<b>Optional Break</b>				
<b>Part 3</b> Burn Treatment Protocols	18	<ul style="list-style-type: none"> <li>• Compensation Coordinator Presentation (optional)</li> </ul>		

DESCRIPTION	DVD/VHS MINUTES	GROUP DISCUSSION/ EXERCISE	EXERCISE MINUTES	SWB PAGE
<b>Module 4 – Fire Operations in the Wildland-Urban Interface</b>	39	• Review:		
		– Wildland Fire Incident Structure Losses		14
		– Wildland-Urban Watch Out Situations		16
		– Structure Assessment Checklist		17
		– Structure Protection Guidelines		18
		– <i>Structure Triage and Defensible Space</i>		19
		– <i>LCES Flowchart</i>		21
• Tailoring the <i>LCES Flowchart</i> to the local unit		10	21	
• Preplanning with Cooperators		10		
<b>Module 5 – Driving Safety</b>	24	• 21 <sup>st</sup> Century Common Denominators for Wildland Firefighter Fatalities and Carl Wilson’s Common Denominators of Fire Behavior on Tragedy Fires		24
		• Wildland Firefighter Fatalities in The United States: 1990-2006		24
		• The SMART <sup>®</sup> Driving System		25
		• <i>Applying Lessons Learned from the Aviation World to Driver Safety</i>	10-15	26
		• Local Unit Driver Training	10	
<b>Module 6 – Fire Shelter Deployment Procedures</b>	2	• Annual Fireline Safety Refresher Comments	10	29
		• Fire Shelter Inspection and Deployment Practice	varies	
<b>OPTIONAL TOPICS</b>				
Communications Update	3	• Review <i>Communications Update</i> from the WFSTAR website.	10	34
Burnover Interview (Lessons Learned Center video)	23			36
<i>Get to Your Destination Safely</i> (USFS video)	2			
What’s New in Leadership	no DVD			37

# Facilitator's Run Sheet

## NOTES:

- ◆ View the video before your classroom presentation.
- ◆ **Be ready to facilitate classroom discussions on each topic.**
- ◆ According to *Interagency Standards for Fire and Fire Aviation Operations – 2008*, “Annual Fireline Safety Refresher Training must include the following core topics:
  - “Avoiding Entrapments – Use training and reference materials to study the risk management process as appropriate to the participants, e.g., LCES, Standard Firefighting Orders, Eighteen Watch Out Situations, Wildland Fire Situation Analysis (WFS) direction, Fire Management Plan priorities, etc.
  - Current Issues – Review and discuss identified “hot topics” as found on the current Wildland Fire Safety Training Refresher (WFSTAR) website. Review forecasts and assessments for the upcoming fire season and discuss implication for firefighter safety.
  - Fire Shelter – Review and discuss last resort survival. Conduct “hands-on” fire shelter inspections. Practice shelter deployments in applicable crew/module configurations. No “live fire” exercises for the purpose of fire shelter deployment training will be conducted.
  - “Other Hazards and Safety Issues – Choose additional hazard and safety subjects, which may include SAFENET, current safety alerts, site/unit specific safety issues and hazards.”
- ◆ The classroom should be set up to facilitate group discussions with five or six persons per group.
- ◆ Ensure that all students have a copy of the *Student Workbook* and the *Incident Response Pocket Guide – 2006 Version*.
- ◆ Provide for class breaks as necessary. Some breaks have been incorporated into some modules.

# DVD Operating Instructions

Hardware Requirement: The preferred method of delivery is through the use of a DVD player. If you are projecting from a laptop, you will need at least a Pentium 4 processor.

## IMPORTANT NOTE:

The DVD has been formatted to return to the main or specific module menus after completion. A Main Menu option is available from each module menu.

For your convenience, the program has been broken into six modules. Descriptions of the modules are listed below. Refer to the DVD/VHS Module column in Facilitator's Guide.

Module 1 – Introduction

Module 2 – Fire Behavior

Module 3 – Human Factors on the Fireline—The Alabaugh Canyon Fire

Module 4 – Fire Operations in the Wildland-Urban Interface

Module 5 – Driving Safety

Module 6 – Fire Shelter Deployment Procedures

Four optional topics have been included:

Topic 1 – Communications Update (short video with Student Workbook reference)

Topic 2 – Burnover Interview (Lessons Learned Center video segment)

Topic 3 – *Get to Your Destination Safely* (USFS video segment)

Topic 4 – What's New in Leadership (Student Workbook reference only)

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To																																									
Module 1	Play	<ul style="list-style-type: none"> <li>– Module 1 introduction</li> <li>– Season statistics recap</li> <li>– References</li> </ul>		SWB-5																																									
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Facilitators have full discretion on how to present the information. To cover “Redbook” requirements, facilitators should utilize the resources with an emphasis on entrapment avoidance.</p> <ul style="list-style-type: none"> <li>• Standard Firefighting Orders (10)               <ul style="list-style-type: none"> <li>– <b><i>Make note that the orders have been categorized in the Student Workbook.</i></b></li> </ul> </li> <li>• Watch Out Situations (18)</li> <li>• LCES</li> <li>• Incident Response Pocket Guide (IRPG)               <ul style="list-style-type: none"> <li>– IRPG sections</li> <li>– Risk Management Process</li> </ul> </li> </ul> <p><i>(Suggested time: 15 – 20 minutes)</i></p> </td> <td>           SWB-6 through SWB-8             FG-10 through FG-11             IRPG         </td> </tr> </table>					<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="3" style="text-align: center;"><b>2007 Fatalities, Entrapments and Serious Accidents</b></th> </tr> <tr> <td colspan="3" style="text-align: center;">As Reported by the Safety and Health Working Team</td> </tr> <tr> <th style="width: 20%;">TYPE</th> <th style="width: 60%;"></th> <th style="width: 20%;">FATALITIES</th> </tr> <tr> <td>Entrapment</td> <td>13 incidents 51 personnel—25 shelters deployed</td> <td></td> </tr> <tr> <td>Burnover</td> <td>3 burnovers 4 personnel</td> <td></td> </tr> <tr> <td>Engines, Dozers, ATVs, and Vehicles</td> <td>18 accidents—10 rollovers, 7 collisions, 1 other</td> <td style="text-align: center;">4</td> </tr> <tr> <td>Aircraft</td> <td>1 accident</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Heart Attack</td> <td>2 incidents</td> <td style="text-align: center;">2</td> </tr> <tr> <td>Hazard Tree</td> <td>3 incidents</td> <td style="text-align: center;">1</td> </tr> <tr> <td>Other</td> <td>6 incidents</td> <td style="text-align: center;">1</td> </tr> </table>	<b>2007 Fatalities, Entrapments and Serious Accidents</b>			As Reported by the Safety and Health Working Team			TYPE		FATALITIES	Entrapment	13 incidents 51 personnel—25 shelters deployed		Burnover	3 burnovers 4 personnel		Engines, Dozers, ATVs, and Vehicles	18 accidents—10 rollovers, 7 collisions, 1 other	4	Aircraft	1 accident	1	Heart Attack	2 incidents	2	Hazard Tree	3 incidents	1	Other	6 incidents	1	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="text-align: center;"><b>2007 Wildland Fire Statistics</b></th> </tr> <tr> <td style="text-align: center;">           85,583 Wildfires            9,318,710 Acres Burned            (7-Year Average – 78,482 fires/7,904,524            acres)         </td> </tr> <tr> <td style="text-align: center;">           24,068 Prescribed Fires            3,147,042 RX Acres Burned         </td> </tr> <tr> <td style="text-align: center;">           345 Wildland Fire Use Fires            430,529 WFU Acres Burned         </td> </tr> </table>	<b>2007 Wildland Fire Statistics</b>	85,583 Wildfires 9,318,710 Acres Burned (7-Year Average – 78,482 fires/7,904,524 acres)	24,068 Prescribed Fires 3,147,042 RX Acres Burned	345 Wildland Fire Use Fires 430,529 WFU Acres Burned		Stop		<p><b>Facilitator Note:</b> Review the following references with students. 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DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
<div data-bbox="370 296 1248 919" style="border: 3px double black; padding: 10px;"> <p style="text-align: center;"><b>STANDARD FIREFIGHTING ORDERS</b></p> <p><b>FIRE BEHAVIOR</b></p> <ol style="list-style-type: none"> <li>1. Keep informed on fire weather conditions and forecasts.</li> <li>2. Know what your fire is doing at all times.</li> <li>3. Base all actions on current and expected behavior of the fire.</li> </ol> <p><b>FIRELINE SAFETY</b></p> <ol style="list-style-type: none"> <li>4. Identify escape routes and safety zones, and make them known.</li> <li>5. Post lookouts when there is possible danger.</li> <li>6. Be alert. Keep calm. Think clearly. Act decisively.</li> </ol> <p><b>ORGANIZATIONAL CONTROL</b></p> <ol style="list-style-type: none"> <li>7. Maintain prompt communications with your forces, your boss and adjoining forces.</li> <li>8. Give clear instructions and be sure they are understood.</li> <li>9. Maintain control of your forces at all times.</li> </ol> <p><b>IF YOU CONSIDER 1-9, THEN</b></p> <ol style="list-style-type: none"> <li>10. Fight fire aggressively, having provided for safety first.</li> </ol> </div>				
<div data-bbox="435 968 1183 1661" style="border: 3px double black; padding: 10px;"> <p style="text-align: center;"><b>WATCH OUT SITUATIONS</b></p> <ol style="list-style-type: none"> <li>1. Fire not scouted and sized up.</li> <li>2. In country not seen in daylight.</li> <li>3. Safety zones and escape routes not identified.</li> <li>4. Unfamiliar with weather and local factors influencing fire behavior.</li> <li>5. Uninformed on strategy, tactics and hazards.</li> <li>6. Instructions and assignments not clear.</li> <li>7. No communication link with crew members/supervisor.</li> <li>8. Constructing fireline without safe anchor.</li> <li>9. Building fireline downhill with fire below.</li> <li>10. Attempting frontal assault on fire.</li> <li>11. Unburned fuel between you and the fire.</li> <li>12. Cannot see main fire, not in contact with anyone who can.</li> <li>13. On a hillside where rolling material can ignite fuel below.</li> <li>14. Weather is getting hotter and dryer.</li> <li>15. Wind increases and/or changes direction.</li> <li>16. Getting frequent spot fires across line.</li> <li>17. Terrain and fuels make escape to safety zones difficult.</li> <li>18. Taking a nap near the fireline.</li> </ol> </div>				



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DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 2 Part 1	Play	– <i>Mega Fires</i> segment from <i>60 Minutes</i> ( <b>optional, 11 min.</b> )	<b>Facilitator Note:</b> An <b>optional</b> chapter called <i>Mega Fires</i> (a <i>60 Minutes</i> segment on the changing fire environment featuring Tom Boatner, retired Chief of Operations—BLM) has been included on the video.	
	Stop		<b>Optional Group Discussion/Exercise</b> Have students get into groups of 5-6 and discuss whether their local area is experiencing fire behavior similar to that presented in <i>Mega Fires</i> .  (Suggested time: 10 minutes)  Review <i>Look Up, Down and Around</i> with students.	IRPG pp. 2-3 SWB-9

<b>Look Up, Down and Around</b> (Pay special attention to indicators in bold print.) (IRPG, pages 2 and 3)	
Fire Environment Factors	Indicators
<b>Fuel Characteristics</b> Assess	<b>Continuous fine fuels</b> Heavy loading of dead and down Ladder fuels Tight crown spacing (<20 ft.) <b>Special Conditions:</b> Firebrand sources Numerous snags Preheated canopy Frost and bug kill Unusual fine fuels High dead to live ratio
<b>Fuel Moisture</b> Feel and Measure	<b>Low RH (&lt;25%)</b> Low 10 hr FMC (<6%) Drought conditions Seasonal drying
<b>Fuel Temperature</b> Feel and Measure	<b>High Temps (&gt;85F)</b> High percentage of fuels with direct sun Aspect fuel temperature increasing
<b>Terrain</b> Scout	<b>Steep slopes (&gt;50%)</b> <b>Chutes – Chimneys</b> Box canyons Saddles Narrow canyons
<b>Wind</b> Observe	<b>Surface winds above 10 mph</b> Lenticular clouds High, fast-moving clouds Approaching cold fronts Cumulonimbus development Sudden calm <b>Battling shifting winds</b>
<b>Stability</b> Observe	Good visibility Gusty winds and dust devils Cumulus clouds Castellatus clouds in the a.m. Smoke rises straight up Inversion beginning to lift Thermal belt
<b>Fire Behavior</b> Watch	Leaning column Sheared column <b>Well-developed column</b> Changing column <b>Trees torching</b> Smoldering fires picking up Small firewhirls beginning <b>Frequent spot fires</b>

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 2 Part 2	Play	<ul style="list-style-type: none"> <li>– Module 2, Part 2, introduction</li> <li>– Tom Boatner</li> <li>– Dr. Bret Butler</li> <li>– Predictive Services               <ul style="list-style-type: none"> <li>• Tom Wordell</li> <li>• Robyn Heffernan</li> </ul> </li> <li>– National Weather Service/IMET               <ul style="list-style-type: none"> <li>• Colleen Decker</li> </ul> </li> <li>– FBAN               <ul style="list-style-type: none"> <li>• Tyler Doggett</li> </ul> </li> </ul>		
	Stop		<p><b>Facilitator Note:</b> This may be a good time to review forecasts and assessments for the upcoming fire season and discuss implications for firefighter safety. Utilize the local IMET, if available.</p> <p><i>(Suggested time: 10-15 minutes)</i></p> <p><b>Individual Exercise:</b> Have students read <i>Taking Good Weather Observations</i> by John F. Saltenberger.</p> <p>Notify students that the article can be found in its entirety on the WFSTAR website via the link provided in their Student Workbook.</p> <p><i>(Suggested time: 5 minutes)</i></p> <p><b>Optional Facilitator Demonstration/Group Exercise</b> Facilitators should demonstrate the proper techniques for using a belt weather kit to take weather observations or have students sling the weather on each break during the training and record the trend on a flipchart or piece of paper.</p> <p><i>(Suggested time: 10-15 minutes)</i></p>	SWB-10 FG-15

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 2 Part 2 (cont.)				
<p style="text-align: center;"><b>TAKING GOOD WEATHER OBSERVATIONS (Excerpt)</b>  John F. Saltenberger - Predictive Services  Northwest Geographic Area Coordination Center, Portland, OR</p> <p>Preface:</p> <p>The purpose of taking weather observations during a wildfire or prescribed fire project is to record environmental conditions prevalent at the site. Depending on the size of the project and the complexity of the terrain, several separate weather observation sites may be necessary to adequately convey weather conditions representative of the entire burn site.</p> <p>Accurate weather observations are important in wildland fire management for several reasons:</p> <p>1st: Meteorologists build their spot weather forecasts based on the observations reported from the fireline. The forecaster uses the observation to build a mental model of weather pattern in the vicinity of burn site. The more accurate and representative the weather observations are, the more effectively a meteorologist can forecast weather conditions at the site. This results in better fire behavior forecasts. If fireline weather observations are incomplete or unrepresentative, the forecaster will have a much more difficult time accounting for localized effects.</p> <p>2nd: Meteorologists seek to verify the accuracy of their forecasts by comparing weather conditions observed at the site versus what was forecast. When differences are noted, the meteorologist can potentially learn from the errors and correct for the next forecast. The belt weather kit observation constitutes the best record of weather conditions near the fireline.</p> <p>3rd: Belt weather kit observations become part of the official fire documentation record. If there is an investigation or litigation following some accident on the fire, belt weather kit observations comprise a key component for reconstructing environmental conditions surrounding the accident. These can prove critical during litigation.</p> <p>1. Siting</p> <p>Key Point: Regardless of whether the fire is a prescribed fire project or a wildfire, the weather observer should strive to pick observation sites that most accurately reflect environmental conditions around the fire's location.</p> <p>2. Observation process</p> <p>Key Point: To be effective, belt weather kits must be properly maintained and operated. Inspect kits for defects prior to each fire assignment. Old, dirty or broken parts should be replaced. Electronic sensors must be calibrated routinely during fire assignments. Proper procedure must be followed to extract the most accurate information from a weather observation.</p> <p>3. Observation logging and remarks</p> <p>Key Point: Careful record keeping is as important to the weather observation process as every other step. It's a good idea for the observer to double check recorded values for obvious errors before logging and submitting.</p> <p>4. Transmission of observations</p> <p>Key Point: The most accurate weather observation is of little use unless it is properly received by those who need its information. The weather observer should make sure that the chain of communication is functioning rapidly and efficiently at both ends.</p> <hr/> <p> Review the entire article including tips at: <a href="http://www.nifc.gov/wfstar/archives/weatherobs.html">http://www.nifc.gov/wfstar/archives/weatherobs.html</a></p>				

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 2 Part 3	Play	<ul style="list-style-type: none"> <li>– Upper End Fire Behavior               <ul style="list-style-type: none"> <li>• Bob Kittridge</li> <li>• Tyler Doggett</li> <li>• Dr. Bret Butler</li> <li>• Kelly Close</li> </ul> </li> <li>– Accelerating Rates of Spread               <ul style="list-style-type: none"> <li>• Kelly Close</li> </ul> </li> <li>– Perception of time               <ul style="list-style-type: none"> <li>• Kelly Close</li> </ul> </li> <li>– Cramer and Ship Island Fires               <ul style="list-style-type: none"> <li>• Kelly Close</li> </ul> </li> <li>– Hot Air Masses               <ul style="list-style-type: none"> <li>• Dr. Bret Butler</li> <li>• Kelly Close</li> </ul> </li> </ul>		
	Stop		<p><b>Facilitator-Led Classroom Discussion:</b> Ask students to share with the group recent instances where they experienced unexpected fire behavior.</p> <p><i>(Suggested time: 10 minutes)</i></p>	

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 3 Part 1			<p><b>Individual Exercise:</b> Have students read the brief excerpt <i>Leaders We Would Like to Meet—Ted Putnam</i>.</p> <p>Notify students that the entire interview and those of other leaders can be found on the Fire Leadership website via the link provided in their Student Workbook.</p> <p><i>(Suggested time: 3 minutes)</i></p>	SWB-11
<div style="border: 2px solid black; padding: 10px;"> <p><b>LEADERS WE WOULD LIKE TO MEET—TED PUTNAM</b> December 7, 2004 by Bill Miller</p> <p><b>Miller:</b> Since you started in 1963, what are the biggest improvements you have witnessed in the wildland fire service?</p> <p><b>Putnam:</b> The biggest improvement is the willingness for firefighters to consider psychological and cultural processes affecting them and to use that knowledge to improve themselves and the fire organization. Some firefighters are now willing to look at mental errors and look within their own minds for causes and how to avoid similar future errors rather than seeing the blame outside their self.</p> <p>A second major improvement is in the amount, quality and range of courses now being taught.</p> <p> For more information, review the entire article and others at: <a href="http://www.fireleadership.gov/toolbox/interviews/leaders_TedPutnam.html">http://www.fireleadership.gov/toolbox/interviews/leaders_TedPutnam.html</a></p> </div>				
			<p><b>Facilitator Note:</b> Notify students that approximately 80% of all accidents and fatalities are caused by human error.</p> <p>It is important that the facilitator set the tone for this module. It is more academic in nature than a normal tactical analysis of firefighting. The clips of Ted Putnam are long but very informative. Tell the students that their full concentration will be required.</p>	

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 3 Part 1 (cont.)	Play	<ul style="list-style-type: none"> <li>– Module 3, Part 1 introduction</li> <li>– Dr. Ted Putnam               <ul style="list-style-type: none"> <li>• Human factors and the decision-making process</li> <li>• The human mind</li> <li>• Mental autopilot</li> </ul> </li> </ul>		
	Stop		<p><b>Facilitator Note:</b> The information below has been included in the Student Workbook for those students who want more information regarding mindfulness meditation.</p>	SWB-12
<p><b>SUGGESTED READING FOR MINDFULNESS (INSIGHT) MEDITATION AND THE UNDERLYING PSYCHOLOGY</b></p> <p>De Charms, Christopher, Two Views of Mind (Ithaca, Snow Lion) 1998.            Goleman, Daniel, The Meditative Mind: Varieties of Meditative Experiences (New York, G.P. Putnam’s Sons) 1988.            Goleman, Daniel, Vital Lies, Simple Truths: the Psychology of Self Deception (New York, Simon and Schuster) 1985.            Goleman, Daniel, Editor, Healing Emotions: Conversations with the Dalai Lama on Mindfulness, Emotions and Health (Boston, Shambhala) 1997.            Goleman, Daniel, Editor, Destructive Emotions: How Can We Overcome Them? (New York, Bantam Dell) 2003.            Gunaratana, Venerable Henepola. Mindfulness In Plain English (Boston, Wisdom Publications) 1992.            Kabat-Zinn, Jon, Coming to Our Senses: Healing Ourselves And The World Through Mindfulness (New York, Hyperion) 2005.            Salzberg, Sharon and Goldstein, Joseph, Insight Meditation: A Step-By-Step Course On How To Meditate (Boulder, Sounds True) 2001. Listen to sample tape online at <a href="http://www.soundstrue.com">www.soundstrue.com</a>.            Shreeve, James, Beyond the Brain, National Geographic, March 2005, 2-31.            Wallace, B. Alan, Choosing Reality (Ithaca, Snow Lion) 1996.            Wilber, Ken, A Brief History of Everything (Boston, Shambhala) 1996.            Weick, Karl, Sensemaking in Organizations (Thousand Oaks, Sage) 1995.</p> <p>Websites:  <a href="http://www.investigatingthemind.org">www.investigatingthemind.org</a> – Research efforts between Western scientists and Buddhist meditators.  <a href="http://www.mindandlife.org">www.mindandlife.org</a> – Research efforts between Western scientists and Buddhist meditators.  <a href="http://www.umassmed.edu/cfm">www.umassmed.edu/cfm</a> – Mindfulness in Medicine, Healthcare and Society.  <a href="http://www.vipassana.com">www.vipassana.com</a> – Online free vipassana (mindfulness) meditation courses and articles.  <a href="http://www.whatthebleep.com">www.whatthebleep.com</a> – Quantum physicists, neuroscientists, philosophers and religious leaders in dialog about recent movie.</p> <p><b>The above resources were provided by:</b>            Ted Putnam, Ph.D. Psychology            Mindful Solutions            3431 Flicker Lane            Missoula, Montana 59804-6303            406-728-3889  <a href="mailto:tputnam@bresnan.net">tputnam@bresnan.net</a></p> <p> <i>Deep Psychology: The Quiet Way to Wisdom</i> can be found at <a href="http://www.myfirecommunity.net/documents/Putnam.pdf">http://www.myfirecommunity.net/documents/Putnam.pdf</a></p>				

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 3 Part 1 (cont.)			<p><b>Facilitator Note:</b> Have students break into groups of 5-6 and discuss the following questions regarding mindfulness on the fireline.</p> <p><b>Optional Group Discussion:</b> In your groups, discuss the following questions regarding distractions and autopilot:</p> <ul style="list-style-type: none"> <li>• What distractions keep you from performing your duties on the fireline?</li> <li>• What method(s) do you use to focus on the task at hand?</li> <li>• Describe an instance on the fireline where you found yourself or someone on your team running on autopilot.</li> </ul> <p><i>(Suggested time: 10 minutes)</i></p>	SWB-13
	<b>BREAK</b>		<p><b>OPTIONAL BREAK</b></p> <p><b>Facilitator Note:</b> Facilitators may opt to insert a short break at this point in the program.</p>	

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 3 Part 2	Play	<ul style="list-style-type: none"> <li>– Module 3, Part 2 introduction</li> <li>– Alabaugh Canyon Fire <ul style="list-style-type: none"> <li>• Al Stover</li> <li>• Grant Gifford</li> <li>• Jay Kurth</li> <li>• Dr. Ted Putnam</li> <li>• Jeremy Dalman</li> <li>• Josh Lange</li> </ul> </li> </ul>	<p><b>Facilitator Note:</b> Students will be asked to refer to <i>Human Factors Barriers to Situation Awareness and Decision Making</i>. Have students open their Student Workbook to page 13 or IRPGs to x and xi prior to starting the video.</p>	SWB-13 IRPG pp. x-xi
<div style="border: 3px double black; padding: 10px;"> <p><b>HUMAN FACTORS BARRIERS TO SITUATION AWARENESS AND DECISION MAKING</b> (IRPG, pages x and xi)</p> <p><b>Low Experience Level with Local Factors:</b></p> <ul style="list-style-type: none"> <li>• Unfamiliar with the area or the organizational structure.</li> </ul> <p><b>Distraction from Primary Duty:</b></p> <ul style="list-style-type: none"> <li>• Radio traffic.</li> <li>• Conflict.</li> <li>• Previous errors.</li> <li>• Collateral duties.</li> <li>• Incident within an incident.</li> </ul> <p><b>Fatigue:</b></p> <ul style="list-style-type: none"> <li>• Carbon monoxide.</li> <li>• Dehydration.</li> <li>• Heat stress and poor fitness level can reduce resistance to fatigue.</li> <li>• 24 hours awake affects your decision-making capability like .10 blood alcohol content.</li> </ul> <p><b>Stress Reactions:</b></p> <ul style="list-style-type: none"> <li>• Communication deteriorates or grows tense.</li> <li>• Habitual or repetitive behaviors.</li> <li>• Target fixation – locking into a course of action, whether it makes sense or not; just try harder.</li> <li>• Action tunneling – focusing on small tasks but ignoring the big picture.</li> <li>• Escalation of commitment – accepting increased risk as completion of task gets near.</li> </ul> <p><b>Hazardous Attitudes:</b></p> <ul style="list-style-type: none"> <li>• Invulnerable – That can't happen to us.</li> <li>• Anti-authority – Disregard of the team effort.</li> <li>• Impulsive – Do something even if it's wrong.</li> <li>• Macho – Trying to impress or prove something.</li> <li>• Complacent – Just another routine fire.</li> <li>• Resigned – We can't make a difference.</li> <li>• Group Think – Afraid to speak up or disagree.</li> </ul> </div>				
	Stop		<p><b>Facilitator Note:</b> Have students read to themselves a brief excerpt from <i>Appendix C – Alabaugh Canyon Fire Entrapment and Shelter Deployment Final Accident Investigation Report</i> on SWB-14.</p>	FG-21

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 3 Part 2 (cont.)			Notify students that the entire report can be found via the link provided in their Student Workbook.  <b>Individual Exercise:</b> Read to yourselves the brief excerpt <i>Appendix C – Alabaugh Canyon Fire Entrapment and Shelter Deployment, Final Accident Investigation Report</i> on SWB-14.  <i>(Suggested time: 5 minutes)</i>	SWB-14
<b>Alabaugh Canyon Fire Entrapment and Shelter Deployment</b> Final Accident Investigation Report, July 8, 2007  <b>Summary (excerpt)</b>  A Narrative Account and Decision Points were utilized to bring focus to what the involved fire fighters were focused on. The extreme weather and fire behavior are keys to understanding the complexities and time pressures arriving fire fighters were confronted with. Add to the environmental complexities changing leadership roles and the immediately over crowded tactical radio channels and we complete the physical and mental context for the entrapment that ensued. In this environment, mental functioning <u>automatically</u> degrades. Therefore we cannot expect decisions and actions to reflect full situational awareness, which cannot exist in this environment either. Rather we should expect reduced awareness and decision making and not be surprised when something “goes wrong”. Accidents are “normal” because they reflect the normal way your mind works in such environments. To improve mental functioning on the fireline requires improving your mental skills before you ever go to the fireline.  After the incident, OSC3 and DIVS discussed and pointed out that “we have seen this extreme fire behavior here for five years in a row.” Previously this type of fire behavior was rare. We have begun to “normalize extreme fire behavior” since it is becoming common. Because fire fighters are getting experienced with extreme fire behavior they’re learning new skills, strategies and tactics to keep pace. They do not feel they are intentionally taking higher risks but if you miss a cue or you are a bit slower implementing decisions then consequences “slam you” worse under extreme conditions.  More Wildland Urban Interface training was recommended to recognize trigger points to quickly determine which structures are savable and which are not. Trigger points for these actions reduce the amount of time and thinking to initiate appropriate actions. We need corresponding trigger points for noting when we are being physically or mentally overwhelmed and need to disengage. Were it not for the homes at risk, fire fighters would not have engaged this fire where they were at such a disadvantage.  If we return to the perennial observation that 80 percent of the casual factors are due to human errors and thus mental in origin, then it is reasonable to say training to improve the mind is long overdue. Such training is inherently different from filling the mind with still more information which can lead to overload. Mind or mental improvement enables you to use information, training and experience more efficiently by reducing stress and other distractions. In this entrapment such mental skills would keep you alert to the larger picture and would have warned the involved firefighters that it is time to back off, regroup, wait for daylight and come up with a more comprehensive plan <u>and thus heed their own warnings</u> .  <hr/>  Review the final report at: <a href="http://www.wildfirelessons.net/documents/Alabaugh_Canyon_Fire_Final_SAI_Report_102407.doc">http://www.wildfirelessons.net/documents/Alabaugh_Canyon_Fire_Final_SAI_Report_102407.doc</a>				
	<b>BREAK</b>		<b>OPTIONAL BREAK</b>  <b>Facilitator Note:</b> Facilitators may opt to insert a short break at this point in the program.	

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 3 Part 3	Play	<ul style="list-style-type: none"> <li>– Module 3, part 3, introduction</li> <li>– Burn treatment protocols               <ul style="list-style-type: none"> <li>• Grant Gifford</li> <li>• Mariah Leuschen</li> <li>• Karin Nichols</li> <li>• Vicki Minor</li> </ul> </li> </ul>		
	Stop		<p><b>Facilitator Note:</b> Facilitators are encouraged to review local/agency burn treatment protocols with participants. Consider having a local Compensation Coordinator speak with participants.</p>	

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 4	Play	<ul style="list-style-type: none"> <li>– Module 4 introduction</li> <li>– Changing fire environment and wildland-urban interface (WUI) <ul style="list-style-type: none"> <li>• Tom Boatner</li> </ul> </li> </ul>	<p><b>Facilitator Note:</b> The material presented on pages 15 through 20 in the Student Workbook are provided as a reference for students. Facilitators have the latitude to discuss the material as appropriate for their audience.</p>	<p>SWB-15 through SWB-20</p> <p>FG-23 through FG-27</p>

The operational roles of the federal agencies as a partner in the Wildland Urban Interface are wildland firefighting, hazard reduction, cooperative prevention and education, and technical assistance. Structural fire suppression is the responsibility of tribal, state or local governments. Federal agencies may assist with exterior structural fire protection activities under formal fire protection agreements that specify the mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for their facilities on lands they administer and may also enter into formal agreements to assist state and local governments with structural protection.)

*Source: 2001 Federal Wildland Fire Policy, p. 23*

### WILDLAND FIRE INCIDENT STRUCTURE LOSSES

(Data compiled and verified March 2007)

	Primary Structures	Commercial Structures	Outbuildings	Seasonal Dwellings*	Totals
1999	259	38	582	8	887
2000	867	53	791	n/a	1,711
2001	214	8	584	n/a	806
2002	1,090	85	1,643	n/a	2,818
2003	4,088	49	1,638	n/a	5,775
2004	340	20	819	n/a	1,179
2005	342	21	693	n/a	1,056
2006	728	67	1,536	n/a	2,331
2007	2,969	56	2,301	n/a	5,326
Averages	1,211	44	1,176	8	2,432

*Note:* Numbers are based on information provided on ICS-209 incident reports and may not reflect actual national losses.

\* Reporting seasonal dwellings was discontinued after 1999.

*Source:* Fire and Aviation Management Web Applications System (FAMWEB).

### WILDLAND-URBAN WATCH OUT SITUATIONS

(IRPG, page 11)

- Poor access and narrow one-way roads.
- Bridge load limits.
- Wooden construction and wood shake roofs.
- Power lines, propane tanks, and HazMat threats.
- Inadequate water supply.
- Natural fuels 30' or closer to structures.
- Structures in chimneys, box canyons, narrow canyons, or on steep slopes (30% or greater).
- Extreme fire behavior.
- Strong winds.
- Evacuation of public (panic).
- Don't park under power lines.
- Don't apply straight stream to power lines.

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 4 (cont.)				
<div style="border: 3px double black; padding: 10px;"> <p><b>STRUCTURE ASSESSMENT CHECKLIST</b> (IRPG, pages 14 and 15)</p> <p><b>Address/Property Name</b></p> <ul style="list-style-type: none"> <li>• Numerical street address, ranch name, etc.</li> <li>• Number of residents on site</li> </ul> <p><b>Road Access</b></p> <ul style="list-style-type: none"> <li>• Road surface driveable</li> <li>• Adequate width</li> <li>• Turnouts, turnarounds</li> <li>• Bridges (load limits)</li> <li>• Stream crossings</li> <li>• Grade (greater than 15%)</li> </ul> <p><b>Structure/Building</b></p> <ul style="list-style-type: none"> <li>• Single residence/multi-complex/out building</li> <li>• Exterior walls</li> <li>• Large unprotected windows facing heat source</li> <li>• Proximity to any above-ground fuel tanks</li> <li>• Roof material</li> <li>• Eaves</li> <li>• Other features (wood deck, wood patio cover and furniture, wood fencing)</li> </ul> <p><b>Clearances/Exposures/Defensible Space</b></p> <ul style="list-style-type: none"> <li>• Structure location (narrow ridge, canyon, mid-slope, chimney)</li> <li>• Adequate clearance—minimum of 30' (Steep slopes = more clearance) (Heavier fuels = more clearance)</li> <li>• Trees, ladder fuel, shrubs adjacent to structure</li> <li>• Other combustibles near structure (wood piles, furniture, fuel tanks)</li> <li>• Adequate clearance around fuel tank</li> <li>• Power lines or transformers</li> </ul> <p><b>Hazardous Materials</b></p> <ul style="list-style-type: none"> <li>• Chemicals, pesticides, herbicides, petroleum products, paint</li> </ul> <p><b>Water Sources</b></p> <ul style="list-style-type: none"> <li>• Hydrant/standpipe, storage tank, pool, hot tub, pond, irrigation ditch</li> </ul> <p><b>Evacuation</b></p> <ul style="list-style-type: none"> <li>• Identify safe evacuation routes and refuge.</li> <li>• Coordinate with on-scene law enforcement and emergency services personnel.</li> </ul> <p><b>Estimated Resources for Protection</b></p> <ul style="list-style-type: none"> <li>• Number(s) and types(s) of engines, tenders, crews, dozers, aircraft.</li> </ul> </div>				

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 4 (cont.)				

### STRUCTURE PROTECTION GUIDELINES

(IRPG, pages 16 and 17)

**Firefighter safety and survival is the number one priority.**

**Equipment Placement**

- Identify escape routes and safety zones.
- ALWAYS STAY MOBILE.
- Back equipment in for quick escape.
- Mark entrance to long driveways to show that protection is in place.
- Park in a cleared area.
- Keep egress route clear.
- Have protection line charged.
- DO NOT make long hose lays.
- Keep sight contact with all crewmembers.

**Water Use Guidelines**

- Keep at least 100 gallons reserve.
- Top off tank at every opportunity.
- CONSERVE WATER. Apply water only if it controls fire spread or significantly reduces heating of structure.
- Keep fire out of the heavier fuels.
- Knock down fire in the lighter fuels.
- Have enough water to last duration of main heat wave and to protect crew.

**Class A Foam Use Guidelines**

- Direct Attack – apply to base of flame.
- Indirect Attack – lay out wet line and burn out.
- Apply to structure (roof and siding) 10-15 minutes before fire arrives.

**Preparing Structure**

- Determine if residents are home.
- Place ladder on side with least fire threat and away from power drop.
- Clean roof of combustible materials.
- Cover vents.
- Remove and scatter fuels away from structure (ladder fuels, wood piles, etc.)
- Clear area around above-ground fuel tank, shutting off tank.
- Place combustible outside furniture inside structure.
- Close windows and doors, including garage, leaving unlocked. AS A LAST RESORT, YOU MAY NEED TO USE STRUCTURE AS REFUGE.
- Have garden hose(s) charged.

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 4 (cont.)		<ul style="list-style-type: none"> <li>– <i>Structure Triage and Defensible Space</i></li> <li>– <i>LCES Flowchart</i></li> <li>– <i>Basic Fire Behavior “Estimate”</i> <ul style="list-style-type: none"> <li>• JP Harris</li> </ul> </li> </ul>	<p><b>Facilitator Note:</b> Within the video, students are asked to refer to the <i>LCES Flowchart</i> below and <i>Basic Fire Behavior “Estimate”</i> on the following page as JP walks them through an on-screen scenario.</p> <p>Facilitators may want to pause the video and have students assess the situation and perform a group structural protection/triage prior to hearing what the firefighters in the video present.</p> <p><i>(Suggested time: 10 minutes)</i></p>	SWB-21 and SWB-22  FG-27 and FG-28

## STRUCTURE TRIAGE AND DEFENSIBLE SPACE

By John and Gary Harris

### DEFINING “STRUCTURE TRIAGE” CATEGORIES

***LCES in place—DEFENSIBLE:***

- Requires little or no attention.
- Will require patrol status or homeowner presence.
- “Stand-alone” or “patrol”

***LCES in place—DEFENSIBLE – “FD STAFFED”:***

- Safety zone at or near the structure for the apparatus and firefighters.
- The structure has a higher probability of ignition without firefighters intervention.

***NO LCES in place—“PREP AND GO”:***

- If time allows, mitigate, apply retardant, CAF, BARRICADE, COLD FIRE, sprinklers.
- Use what you have.

***NO LCES in place—“NON-DEFENSIBLE OR RESCUE/DRIVE-BY”:***

- No safety zone for apparatus or firefighters.

### DEFINING A “DEFENSIBLE SPACE” FOR STRUCTURE PROTECTION

Some fire texts and firefighters are advocating that we need three to four times the distance of maximum flame length to protect a structure. Many uphill fire runs will have 15- to 50-foot flame lengths. In the real world this is not practical due to “fire on fire effect” as defined in Doug Campbell’s fire behavior prediction system called *The Campbell Prediction System* (<http://www.dougsfire.com/>).

Classes that Gary and I teach will define “defensible space” by observing structures in the community utilizing a real-world combination of terrain, fuel load, barriers, construction, and assuming different weather patterns to establish the fire behavior prediction. In addition, consider the following *negatives* and *positives* to assist in your judgment in structure triage, **never forgetting LCES**.

**Negatives**

- Any structure on a slope (mid-slope structure) with the fire approaching from a lower elevation.
- A structure that is in a draw, chimney, box canyon.
- A structure that will require locating your engine between the structure and the fire.
- A structure that has vegetation up against the structure (ornamental or native).
- A structure that has an LPG tank that is impacted with brush.
- A structure that has trees surrounding it or the branches are from tree to tree, entwined (closed canopy) so as to give the appearance the structure is in a tunnel or cave.
- The steeper the slope below the structure, the greater the hazard.

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
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Module 4 (cont.)				
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- A structure that has the appearance of being a junk yard (stuff) with considerable flammable, easily ignitable material such as old construction wood, piles of brush, leaves.
- Aspect (the direction the slope faces). The south, southwest, and west aspects are the most hazardous locations to defend the structure.
- Time of day and aspect should be considered as a unit. I highly recommend Doug Campbell's *Wildland Fire Signature Prediction Methods* training to further your size-up and triage ability.
- Fuel Type and Height. We know all Southern California fuel types will burn; however, company officers should know the basics. Sages, buckwheat, and chemise will burn much faster than the heavier fuels, especially if they have grasses as a component of their fuel bed. Heavier fuels—sumac, ceanothus, mountain mahogany, and buckthorn—will give off greater amounts of BTUs and have greater flame length in some cases but will generally burn at a much slower rate of spread.
- No water source or limited water source. Remember: don't bet your crew's life on water supply or a hose line.
- A wood shingle roof, wood-sided structures.

These are a few of many negatives and are just that. They are not red lights but yellow lights. However, if you have numerous yellow lights, you better take your foot off the aggressive firefighting and reevaluate your position.

**Positives**

- + A structure on a ridge with a roadway or driveway on the opposite side of the approaching fire.
- + A structure with over one hundred feet of clearance and no ornamental vegetation near weak points of the structure.
- + A structure where your safety zones jump out at you (large green areas, east access to a non-combustible exterior and roof).
- + A fire is approaching from higher elevation than the structure you are protecting, with little or no wind.
- + A backing fire (fire burning against the wind towards your location).
- + Generally speaking, structures on a north or east aspect are safer to protect provided low wind speed (<15 mph).
- + There is a source of water—hydrant, private water tank, or garden hose supply.

The most important issue is feet of clearance at the location where the flaming front will first impact your crew. In some cases 10 feet will be adequate (backing fire). In other cases, we need 40 to 50 feet; and in some cases, 100 or 200 feet won't be adequate (wind driven, mid-slope structure in full alignment).



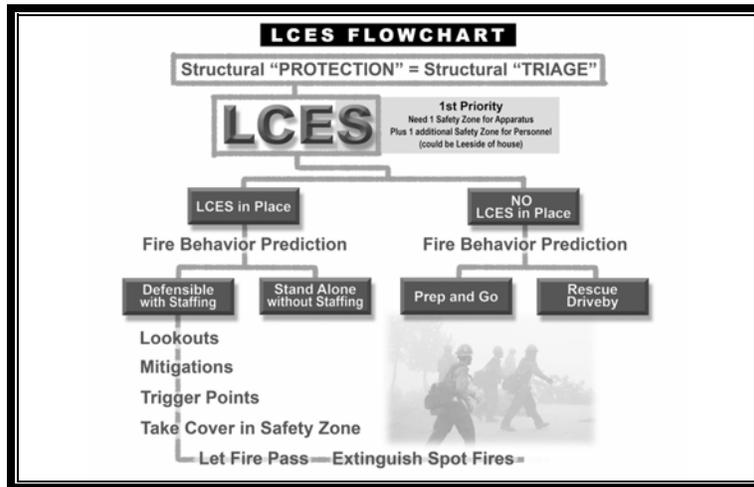
**JP (John) Harris is a retired Battalion Chief, Los Angeles County Fire Department.**

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727 Bel Air Drive  
Vista, CA 92084

Personnel may order additional information on interface fires from <http://www.firestormvideos.com>.

*Interface Fire Fighting for Fighters by Firefighters*, a 3 hour 40 minutes DVD series depicting actual interface firefighting (narrated by JP Harris and Tony Duprey, retired USFS).



DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
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Module 4 (cont.)				
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**BASIC FIRE BEHAVIOR "ESTIMATE"**

Tactics Begin with Terrain

Time	<u>0500-0900</u>	<u>0901-1130</u>	<u>1131-1500</u>	<u>1501-1700</u>	<u>1701-2000</u>	<u>2000-0500</u>
Terrain*	_____	_____	<input type="text"/>	<input type="text"/>	_____	_____
Aspect**	_____	_____	<input type="text"/>	<input type="text"/>	_____	_____
Wind	_____	_____	<input type="text"/>	<input type="text"/>	_____	_____
Humidity	_____	_____	<input type="text"/>	<input type="text"/>	_____	_____
Temperature	_____	_____	<input type="text"/>	<input type="text"/>	_____	_____
Alignment	_____	_____	<input type="text"/>	<input type="text"/>	_____	_____

Spotting (Currently/Expected) \_\_\_\_\_

**Fuel Bed Considerations:**

Fuel Type \_\_\_\_\_

Dead to Live Ratio\*\*\* \_\_\_\_\_

Fuel Moisture \_\_\_\_\_

Shading Effects (clouds, smoke, sunset): \_\_\_\_\_

**Fire History:**

Currently, what is the fire doing? \_\_\_\_\_

What was the fire doing yesterday at this time? \_\_\_\_\_

Previous fire same ground \_\_\_\_\_

Homeowners

Local fire personnel

**Comments and Reminders**

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\*Terrain between your location and the fire—**little picture, big picture.**  
 \*\*Aspect—peak heat ranges: east, 0900; south/southwest, 1200-1500; west, 1600-1800  
 \*\*\*Dead to live ratio—include bug kill, die-back, and blow down in your estimate

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 4 (cont.)	Stop		<p><b>Facilitator Note:</b> Depending on the audience, facilitators may want to break students into groups of 5-6 and have them develop a process that will work for their home unit utilizing the <i>LCES Flowchart</i> and <i>Basic Fire Behavior “Estimate.”</i></p> <p><b>Optional Group Exercise:</b> In your groups, evaluate the <i>LCES Flowchart and Basic Fire Behavior “Estimate”</i> found on pages SWB-21 and -22 and determine if this tool is applicable to your local area or if it needs to be customized.</p> <ul style="list-style-type: none"> <li>• What are the important fire behavior indicators in your fuel type and location?</li> </ul> <p><i>(Suggested time: 10 minutes)</i></p> <p><b>Facilitator Note:</b> A link to <i>Faces: The Story of the Victims of Southern California’s 2003 Fire Siege</i> by Robert Mutch is provided in the Student Workbook.</p> <p><b>Group Discussion:</b> Discuss the following questions in your group:</p> <ul style="list-style-type: none"> <li>• What needs to be done on your local unit to prepare local cooperators for this fire season?</li> <li>• How can you cross train with local cooperators using JP Harris’ <i>LCES Flowchart</i>?</li> <li>• What lessons learned in California can be of value to your local unit?</li> </ul> <p><i>(Suggested time: 10 minutes)</i></p>	<p>SWB-21 and SWB-22 FG-27 and FG-28</p> <p>SWB-23</p> <p>SWB-23</p> <p>SWB-23</p>

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 4 (cont.)			<p><b>Facilitator Discussion Points:</b> Preplanning efforts should include:</p> <ul style="list-style-type: none"> <li>• Meeting with your local cooperators</li> <li>• Sharing and updating maps</li> <li>• Collaborating on unified command structures</li> <li>• Updating your communications plans</li> <li>• Identifying high-hazard potential areas</li> <li>• Creating/updating public educations plans.</li> </ul> <p>The information below was taken from the 2007 Annual Fireline Safety Refresher. This information is <b>not</b> included in the Student Workbook.</p>	
<p><b>ITEMS TO COVER IN THE PRE-SEASON, PRE-PLANNING MEETING (NON-INCLUSIVE LIST)</b></p> <p><b><u>Operating Procedures:</u></b></p> <ul style="list-style-type: none"> <li>• Protection Organization – coordination centers and summary of agencies protection limitations and capabilities</li> <li>• Fire Notification and Action – prompt notification of taking suppression action</li> <li>• Dispatch Operating Plan – each agency develops their own</li> <li>• Aircraft Policies – use and availability</li> <li>• WFSA – must be completed immediately if declared escape fire</li> <li>• Command and Organization – IC determination and use</li> <li>• Communications – list of frequencies, contacts</li> <li>• Media and Public Relations – each agency separate or unified press releases</li> <li>• Security and Access – incorporating of local law enforcement</li> <li>• Emergency Medical Services – EMT, ambulance</li> <li>• Qualifications/Minimum Recommendation</li> <li>• Protective Equipment and Physical Fitness</li> <li>• Cooperation of Resources – training, prevention efforts, fire investigation</li> <li>• Mutual Aid Agreements – with or without reimbursement</li> <li>• EERA – Emergency Equipment Rental Agreement process</li> </ul> <p><b><u>Billing Amounts and Procedures:</u></b></p> <ul style="list-style-type: none"> <li>• Reciprocal fire protection zones</li> <li>• Severity requests</li> <li>• Fire preparedness</li> <li>• Emergency fire suppression</li> <li>• Administrative surcharges</li> </ul> <p><b><u>Special Management Considerations:</u></b></p> <ul style="list-style-type: none"> <li>• Repair of Suppression Damage – responsibility of each agency</li> <li>• Waivers – claims for loss, damage, injury against other agency</li> </ul>				

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 5	Play	<ul style="list-style-type: none"> <li>– Module 5 introduction</li> <li>– <i>Wildland Firefighter Fatalities in the U.S. from 1990 to 2006</i></li> </ul>		SWB-24



## 21st-Century Common Denominators for Wildland Firefighter Fatalities

As the major causes of firefighter fatalities shift, additional factors need to be considered:

1. Firefighters are most likely to die in an aircraft accident. Before every flight, fire managers must ask, “Is this flight essential?” and “Is everyone onboard essential to the mission?”
2. Firefighters are nearly as likely to die in a vehicle accident as in an aircraft accident. Driving too fast for the conditions, failure to wear seat belts, rushing to a fire, and driving home while exhausted from firefighting kills firefighters.
3. Firefighters can reduce their risk of dying from heart attacks on the job by staying fit, maintaining their body weight, and having regular medical checkups.
4. Unexpected events such as falling snags, rolling rocks, downed power lines, and lightning strikes cause more than 8 percent of fatalities during wildland fire fighting operations. Firefighters and fire managers can reduce fatalities by learning to expect these unexpected events.

More than 20 percent of fatalities during wildland firefighting operations continue to occur in burnovers. Carl Wilson’s original common denominators are just as important in the 21st century as they were in the 20th.



## Carl Wilson’s Common Denominators of Fire Behavior on Tragedy Fires

There are four major common denominators of fire behavior on fatal and near-fatal fires. Such fires often occur:

1. On relatively small fires or deceptively quiet areas of large fires.
2. In relatively light fuels, such as grass, herbs, and light brush.
3. When there is an unexpected shift in wind direction or wind speed.
4. When fire responds to topographic conditions and runs uphill. Alignment of topography and wind during the burning period should always be considered a trigger point to re-evaluate strategy and tactics.

(Source: *Wildland Firefighter Fatalities in the United States: 1990-2006, PMS 841*)  
<http://www.nwcg.gov/pms/pubs/large.html#841>

WILDLAND FIREFIGHTER FATALITIES IN THE UNITED STATES: 1990-2006		
Aircraft accidents .....	72 fatalities .....	23%
Vehicle accidents .....	71 fatalities .....	23%
Heart attacks.....	68 fatalities .....	22%
Burnovers.....	64 fatalities .....	21%

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 5 (cont.)		<ul style="list-style-type: none"> <li>– Rob Christensen</li> <li>– Betsy Lange</li> <li>– SMART System               <ul style="list-style-type: none"> <li>• Joe Darden</li> </ul> </li> </ul>		SWB-25
<div style="border: 3px double black; padding: 10px;"> <p style="text-align: center;"><b>THE SMART<sup>®</sup> DRIVING SYSTEM</b></p> <p><b>Study</b></p> <ul style="list-style-type: none"> <li>• The rules of the road</li> <li>• Your vehicle before you turn the key</li> <li>• What is going on around your vehicle at all times—even when parked</li> </ul> <p><b>Maintain</b></p> <ul style="list-style-type: none"> <li>• A safe cushion of space around your vehicle</li> <li>• A straight line of travel</li> <li>• Your vehicle</li> <li>• Yourself</li> </ul> <p><b>Anticipate</b></p> <ul style="list-style-type: none"> <li>• What other motorists/pedestrians are going to do</li> <li>• Changing traffic signals</li> <li>• Changes in intersections</li> <li>• Changing road conditions</li> </ul> <p><b>Respond</b></p> <ul style="list-style-type: none"> <li>• To changing conditions</li> <li>• To identified hazards</li> <li>• To unsafe drivers</li> </ul> <p><b>Train</b></p> <ul style="list-style-type: none"> <li>• Carefully</li> <li>• Consistently</li> <li>• Constantly</li> </ul> </div> <p style="text-align: right;"><b>Source: Joe Darden Group™</b></p> <div style="display: flex; align-items: center; margin-top: 10px;">  <p>For more information about how The SMART Driving System™ can benefit you and your agency/local unit, visit <a href="http://www.joedardengroup.com">http://www.joedardengroup.com</a>.</p> <p>Joe Darden Group, LLC 9220 SW Barbur Blvd #119-146 Portland, OR 97219 Phone: (503) 367-7643</p> </div>				
		<ul style="list-style-type: none"> <li>– Lessons from aviation               <ul style="list-style-type: none"> <li>• John Stright</li> <li>• United Kingdom</li> </ul> </li> </ul>		

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 5 (cont.)	Stop		<b>Facilitator Note:</b> Have students read <i>Applying Lessons Learned from the Aviation World to Driver Safety</i> .	
<p><b>APPLYING LESSONS LEARNED FROM THE AVIATION WORLD TO DRIVER SAFETY</b></p> <p>What lessons from the aviation world can be applied to driver safety? In <i>Situation Awareness</i> (<a href="http://www.2pass.co.uk/awareness.htm">http://www.2pass.co.uk/awareness.htm</a>), a professor from Cardiff University addresses how pilots have honed their situational awareness skills over the last few decades and how those skills can be applied to driving a vehicle.</p> <p>The professor notes, “One advanced skill learned by both pilots and drivers is anticipation, and it is anticipation that leads to enhanced risk perception. The same set of techniques used by pilots to increase their anticipation can also be used by us drivers to increase our risk perception skills.”</p> <p>In his article, the professor addresses defensive driving and risk perception techniques that can enhance a driver’s situation awareness ability. He starts his discussion by breaking situation awareness into three levels that “come together in a balanced and interlinked circular flow of looking, thinking, and anticipating.”</p> <div style="border: 3px double black; padding: 10px; margin: 10px auto; width: 80%; text-align: center;"> <p><b>Situation Awareness Levels</b></p> <p><b>Level 1 – Where we look and perceive basic information</b></p> <p><b>Level 2 – Where we think about and understand the meanings of that information</b></p> <p><b>Level 3 – Where we use the meanings in order to anticipate what will happen ahead in time and space</b></p> </div> <p>Most organizations require their employees to take defensive driving in order to operate a motor vehicle. Individuals can have all the driving knowledge in the world; but if they don’t become skilled in developing good situation awareness, they may subject themselves to unnecessary risk.</p> <p>Enhancing situation awareness is the responsibility of every wildland firefighter to ensure that he/she is as safe as possible regardless of the task at hand. Step 1 of the Risk Management Process specifically addresses situation awareness (IRPG, page 1). Every wildland firefighter should make a concerted effort to hone his/her situation awareness ability.</p> <p>The professor reiterates that point. “I cannot over emphasize that by fully understanding the process of developing situation awareness, and systematic building of the skill you can vastly improve your safety skills when driving. More importantly, by building up the elements of this method, and practising [sic] this SA strategy you can begin to make it a habit. It is the best habit you can have, and it may help to offset some of the bad habits that can creep in. It can help to maintain a sense of your driving as a professional task, and as the only task to be engaged in while in the driving seat of a road-vehicle.”</p> <p>The following suggestions are ways to improve each level of situation awareness:</p> <p><i>Improving Level 1 Situation Awareness</i></p> <ul style="list-style-type: none"> <li>• Learn to look (and think and anticipate) effectively.</li> <li>• Widen your knowledge of driving theory.</li> <li>• Learn through practical driving experience.</li> <li>• Use a scanning strategy to increase the perception of relevant information.</li> <li>• Maintain the context (threats of safety) while switching between areas of focused attention (looking for more threats to safety).</li> <li>• Practice the scanning and concentrating your attention.</li> <li>• Eliminate distractions from your driving.</li> </ul> <p><i>Improving Level 2 Situation Awareness</i></p> <ul style="list-style-type: none"> <li>• Think through events and consequences in a step-by-step manner—constantly check what you see and what you are doing.</li> <li>• Pay more attention to the pros and cons of events.</li> <li>• Talk yourself through what you see in the road environment and what it means in terms of safety and threats.</li> </ul>				

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
<p><i>Improving Level 3 Situation Awareness</i></p> <ul style="list-style-type: none"> <li>• Anticipate what is going to happen.</li> <li>• Aim to stay out of range of threatening events.</li> <li>• Pay conscious and thoughtful attention to what we are doing—be “aware of being aware.”</li> <li>• Rescan to see if things are progressing the way you predicted.</li> <li>• Take a professional attitude to you task of driving.</li> <li>• Learn about road-transport and treat road safety as a constant profession responsibility.</li> <li>• Learn more about the human factors involved in driving, and feed all this information back into your understanding of how you stay aware.</li> </ul> <p><i>(Refer to pages x and xi of the 2006 Incident Response Pocket Guide for the “Human Factors Barriers to Situation Awareness and Decision-Making”)</i></p> <p>In closing, the professor makes one very important statement. “The ‘meta-skill’ of situation awareness complements and enhances your cognition while driving; it does not replace road craft skills. Situation awareness is all about knowing the future situation, but what you do not know about you cannot predict. It will most likely be the thing you have not yet learned about that will most likely harm you, as you probably won’t see it coming. So building your knowledge base of road craft is as important to driving as is looking out of the windscreen.”</p>  To review the article in its entirety, complete with actual techniques, visit <a href="http://www.2pass.co.uk/awareness.htm">http://www.2pass.co.uk/awareness.htm</a> .				
			<p><b>Facilitator Note:</b> Break students into groups of 5-6 and have them read and discuss in their groups <i>Applying Lessons Learned from the Aviation World to Driver Safety</i>.</p> <p><b>Group Discussion:</b> After reading <i>Applying Lessons Learned from the Aviation World to Driver Safety</i> on SWB-26 and SWB-27, discuss the following questions in your group.</p> <ul style="list-style-type: none"> <li>• How do you personally maintain good situation awareness (SA) while driving?</li> <li>• What is your role as a passenger in helping the driver maintain good SA?</li> </ul> <p><i>(Suggested time: 10-15 minutes)</i></p>	<p>FG-33 through FG-34</p> <p>SWB-26 through SWB-28</p>
	Play	<p>– Distractions, choice, UPS Circle of Honor, focus on driving, making driving personal, speeding</p> <ul style="list-style-type: none"> <li>• Joe Darden</li> </ul>		

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 5 (cont.)	Stop		<p><b>Facilitator Note:</b> Break students into groups of 5-6 to complete the exercise below.</p> <p><b>Optional Group Exercise:</b> In your groups, discuss how your local unit currently trains engine operators and crew drivers.</p> <ul style="list-style-type: none"> <li>• What have you learned in this module about driving that can be incorporated into driver training at your home unit?</li> <li>• What will you apply to your personal driving?</li> </ul> <p><i>(Suggested time: 10 minutes)</i></p>	SWB-28

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DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Module 6	Play	<ul style="list-style-type: none"> <li>– Module introduction</li> <li>– Program conclusion</li> </ul>		
	Stop		<p><b>Facilitator Note:</b> Prior to conducting the outside fire shelter deployment practice, ensure that participants complete an evaluation.</p> <p><b>Individual Exercise:</b> Complete the <i>Annual Fireline Safety Refresher Comments</i> form on SWB-41 and submit to your facilitator. Input is crucial to the development of the program.</p> <p><i>(Suggested time: 10 minutes)</i></p> <p>NOTE: If you have crew videos, season summaries, or other training materials that you would like to be considered for inclusion in future refresher training programs, please make reference as such on the comments form.</p> <p><b>Facilitator Note:</b> Use the following pages to facilitate the visual inspection and practice deployment of the fire shelter(s) participants will be using for the coming fire season. Demonstrate the proper deployment procedures for the fire shelter being used.</p>	<p>SWB-41 FG-53</p> <p>FG-38 through FG-41</p>
			<p><b>Group Exercise:</b> Following the guidance of the facilitator, review the process of visually inspecting a fire shelter and demonstrate the proper technique for deploying a fire shelter.</p> <p><i>(Suggested time: varies depending on number of students)</i></p>	<p>SWB-30 through SWB-33</p>

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
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0351-2895-MTDC

## FIRE SHELTER USE INSTRUCTIONS

1. Pick the largest available clearing. Avoid saddles, chimneys, and draws; avoid **anything** that will burn.
2. Wear gloves, hardhat, and if you have one, a face and neck shroud. Throw packs, fusees, chain saws, and gas far from your deployment site.
3. Scrape away flammable litter—if time permits.
4. Pull the red ring to tear off the plastic bag.



5. Grasp the shake handles (**LEFT HAND, black** lettering—**RIGHT HAND, red** lettering).



6. Shake until the shelter is unfolded.



7. Lie face down in the shelter. Keep your feet toward the oncoming fire. Push out the sides for more protection from the heat. Slip your arms through the holddown straps on the shelter floor. Keep your mouth near the ground.



Shelter is cut away to show body position.

### Remember...

- Do not open the plastic bag until the shelter is needed for emergency use.
- You **MUST BE ON THE GROUND** when the fire arrives!
- After the fire has cooled, pick the safest area and wait for help.
- Watch for falling snags and rolling rocks!

[http://www.fs.fed.us/fire/safety/shelter/shelter\\_index.html](http://www.fs.fed.us/fire/safety/shelter/shelter_index.html)

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
		<div data-bbox="342 289 537 474" data-label="Image"> </div> <div data-bbox="662 285 1289 478" data-label="Image"> </div> <div data-bbox="451 480 1159 522" data-label="Text"> <p><a href="#">Home</a>   <a href="#">Training Topics</a>   <a href="#">Reference Materials</a>   <a href="#">Featured Websites</a>   <a href="#">Policy Statements</a>   <a href="#">Training Principles</a>   <a href="#">Contacts &amp; Suggestions</a>   <a href="#">Safety Essays</a>   <a href="#">Archives</a></p> </div> <div data-bbox="326 575 1276 655" data-label="Text"> <p>The New Generation Fire Shelter redesign project started in January 2000. The new shelter system, which includes the fire shelter, training shelter, video and booklet, became available to fire fighters in 2003. Even though the New Generation Fire Shelter is available through GSA and private vendors, a complete transition from the old-style shelter to the New Generation Fire Shelter for all firefighters may take another one to three years.</p> </div> <div data-bbox="326 680 1284 781" data-label="Text"> <p>An interagency Fire Shelter Task Group has been formed. The purpose of the group is to guide the fire shelter program into the future, to involve stakeholder groups in decisions of the fire shelter management, and to ensure that MTDC receives needed support and direction from leadership. Members of the group represent most Federal and State fire agencies. They include hot shots, smokejumpers, Fire Safety Officers, fire training staff, equipment specialists, and NIFC and WVO engineering personnel. The task group is currently developing a transition and communication plan.</p> </div> <div data-bbox="326 806 1263 846" data-label="Text"> <p>The following Tech Tips can be ordered in hard copy through MTDC or can be accessed electronically on the T-D internet site. You will be prompted for a user name (<i>t-d</i>) and password (<i>t-d</i>).</p> </div> <div data-bbox="326 871 1266 913" data-label="Text"> <p>A 2003 Tech Tip entitled "<a href="#">New Generation Fire Shelter Developed for Wildland Firefighters (0351-2313-MTDC)</a>" provides information on the new fire shelter system. Instructions are included for modifying existing fireline packs to fit the new shelter.</p> </div> <div data-bbox="326 936 1273 1016" data-label="Text"> <p>The 2003 Tech Tip entitled "<a href="#">Fire Shelters Weaken Transmissions From Hand-Held Radios (0351-2342)</a>" provides information on the difficulty firefighters may have communicating with hand-held radios while inside fire shelters. Transmissions from the older VHF Bendix-King radios were not weakened as badly as those from the newer UHF Motorola Astro XTS 3000 radios. A table is included that shows how much the transmissions were weakened in different situations.</p> </div> <div data-bbox="326 1041 1263 1083" data-label="Text"> <p>The 2005 Tech Tip <a href="#">Large New Generation Fire Shelter Now Available (0551-2325)</a> provides information on the new large-size fire shelter. This Tech Tip discusses the differences between the fire shelters, which size firefighters should use, training, and ordering information.</p> </div> <div data-bbox="326 1106 1278 1167" data-label="Text"> <p>The 2006 Tech Tip <a href="#">What's New With The New Generation Fire Shelter (0651-2322)</a> provides latest information concerning the fire shelter. The Tech Tip discusses topics raised by firefighters about the fire shelter and describes the process to reinforce the PVC shelter bags that were produced before June 2005.</p> </div> <div data-bbox="391 1199 743 1434" data-label="Image"> </div> <div data-bbox="867 1199 1219 1434" data-label="Image"> </div>		

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
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**New Large-Size Shelter:**

The new large-size fire shelter for use by firefighters who find the regular-size shelter to be a tight fit is available through GSA. It is recommended that people more than 6 feet 1 inches in height obtain and carry a large-size fire shelter. The large shelter will provide better protection for larger people by allowing less contact of the shelter material with an occupant's body, by providing more air space between the shelter and an occupant, and by reducing the stress on the shelter material caused when a larger person stretches out inside the shelter. The large shelter fits in the same carrying case as the regular-size New Generation Fire Shelter. The word "LARGE" is stenciled on the orange quick deployment strap of the shelter. Firefighters less than 5 feet 7 inches in height should carry the regular-size fire shelter.

	Old-Style Shelter	Large New Gen	Regular New Gen	
<b>Weight</b>	3.4 lbs	5.2 lbs	4.6 lbs	
<b>Dimensions</b>	8.5" x 5.5" x 3"	9" x 5.5" 4"	8.5" x 5.5" x 4"	Figure 1 - New fire shelter
<b>Deployed</b>	Length - 71" Height - 24" Width - 48"	96" 19.5" 33"	86" 15.5" 31"	

**Recent Development:**

Through development work by MTDC, a higher strength floor material is now being used in production. This creates a shelter design with a stronger one-piece floor that doesn't need seam reinforcements, which in turn lessens weight and bulk. The shake handles have been improved by adding a ¼-inch diameter plastic pipe that allows the shake handle to be held easier with gloved hands. The attachment of the shake handles to the shelter has also been strengthened. An additional line of fiberglass stitching has been added to improve strength of the major seams at low and moderate temperatures. Quartz thread, already present in the seams, maintains its strength in the very high temperatures that can occur during a fire shelter deployment.

**How will adoption of the New Generation Fire Shelter affect wildland firefighters?**

From the perspective of how we train firefighters to use fire shelters, very little has changed. Though the new shelter offers better protection from flames than the old-style shelter, survival of the occupant is more likely if direct flame contact with the shelter is avoided. Even though the new shelter provides increased protection compared with the old-style shelter, firefighters still need to know how to recognize potential entrapment situations and how to avoid them. The same evaluation process that firefighters have been using to identify survivable sites still applies. Teaching firefighters to avoid deploying shelters in or near fuel concentrations, chimneys, and other potentially hazardous areas will continue to remain an important part of fire shelter training.

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
		<p>The New Generation Fire Shelter provides significantly better protection in direct flame than the old-style shelter, but it is not failsafe. In extreme conditions the new shelter may not offer sufficient protection. And, as with the old-style shelter, the high temperature materials used in the new shelter must be treated with care during storage, while being carried on the fireline, and during deployment. Excessive force on the material or contact with sharp objects can cause the cloth to tear. For the best protection, treat your fire shelter with care. More importantly, avoid situations that can lead to entrapment. Plan your actions on the fireline so that you never need to deploy your fire shelter.</p> <p><b>Use of Original Fire Shelter</b> The original (old-style) fire shelter still provides good protection if used as described by existing guidelines. The old-style shelters can be used until the transition to new shelters is complete and as long as they meet the Inspection Criteria outlined in the booklet <i>Your Fire Shelter, 2001 Edition</i>. (NFES1570) <a href="http://www.nwcg.gov/lms/pubs/fireshell01.pdf">http://www.nwcg.gov/lms/pubs/fireshell01.pdf</a></p> <p>Inspection of the shelters is critical to the shelter's structural integrity. In July 2006, ten firefighters deployed their fire shelters at the Little Venus fire in order to save their lives. Five of the ten shelters were old-style shelters. Of those five, three shelters had severe damage upon opening; one had a tear 43 inches long! Failure to inspect the fire shelters led to the firefighters carrying these damaged shelters while working fires.</p> <p><b>Fire Shelter Training Aids</b> Fire shelter training materials for either shelter system includes the <i>Entrapment Avoidance-It's Your Call!</i> training program (2002), and the <i>Lessons From the Thirty-mile Fire</i> html/PowerPoint training program.</p> <p>Instructors providing training for persons with original (old-style) fire shelters will need to utilize the <i>Using Your Fire Shelter</i> video, 2001 edition (NFES# 1568) to demonstrate the most current original fire shelter information available today. A previous fire shelter training video, <i>Your Fire Shelter</i>, 1986 edition (NFES# 1568), shows techniques that are no longer recommended. Since both videos have the same NFES number and similar titles, eliminate the 1986 version from training libraries to prevent confusion.</p> <p>The <i>Your Fire Shelter</i> booklet (NFES #1570) 2001 edition, and the <i>Avoid the Flames</i> pamphlet (99-M40-MTDC) can also be used as training materials.</p> <p><b>Training for New Shelter</b> During the spring burning season of 2006, MTDC conducted additional fire shelter field testing inside a prescribed burn. It is critical to receive proper training in the use of the New Generation Fire Shelter before it is taken on the fireline. This requires at a minimum reading the training pamphlet, viewing the training video or DVD, and practicing deployments using a practice fire shelter. The video (and DVD) and pamphlet include information about how the shelter works, how to deploy it, how to select a deployment site, what entrapment experience might be like, how to train to use the shelter, and how to care and inspect the shelter.</p> <p>NFES#2711, VHS Fire Shelter training video <i>The New Generation Fire Shelter</i> NFES#2712, same video in DVD format NFES#2710, pamphlet, <i>The New Generation Fire Shelter</i></p> <p>Spanish versions are also available NFES 2735, video, VHS, <i>El Refugio de Proteccion Nueva Generacion</i> and NFES 2736, pamphlet, <i>El Refugio de Proteccion Nueva Generacion</i>.</p> <p>Training materials can be ordered through the Great Basin Cache located at the National Interagency Fire Center (NIFC). All fire shelter training materials are contained within PMS 411. For more ordering information, go to the NWCG publications website: <a href="http://www.nwcg.gov/lms/pubs/pubs.htm">http://www.nwcg.gov/lms/pubs/pubs.htm</a></p> <p>Fire shelters for training can be purchased through GSA's Wildland Fire Equipment Catalog or through private distributors.</p> <ul style="list-style-type: none"> <li>• New generation practice fire shelters <ul style="list-style-type: none"> <li>-Regular size, complete: NSN 6930-01-499-0605</li> <li>-Large size, complete: NSN 6930-01-529-8807</li> </ul> </li> </ul> <p><b>Remember</b>, fire shelters are not fail safe, carrying a fire shelter should never be considered as an alternative to safe firefighting.</p>		

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## OPTIONAL TOPICS

DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
<b>Topic 1</b> Communications Update	Play	– Communication Updates • Mike Tuominen	<b>Facilitator Note:</b> This is an <b>optional</b> topic which includes a short video and reference from the WFSTAR website.	
	Stop		<b>Facilitator Note:</b> Have students read and discuss in groups or as a class in information presented in the <i>Communications Update</i> .  (Suggested time: 10 minutes)  This may be an appropriate place to have local radio personnel talk with the group about local communication issues.	SWB-34 through SWB-35  FG-43 through FG-44

### COMMUNICATIONS UPDATE

As incidents advance in complexity, communication management becomes a challenge. An ever increasing number of personnel with radios, a general lack of available frequencies, and multiple events requiring information sharing including: logistical needs, fire behavior and location, weather, tactical assignments, medical emergencies, travel management, coordination with dispatch, and of course the inevitable "what's your location" tie up frequencies and reduce timely communications that affect the safety of all incident personnel.

- What is **radio etiquette**? How can radio etiquette be used to improve incident communications? What are examples of radio etiquette?
- Have you ever been on an incident where tactical frequencies were **tied up**? What happened? How did you adjust your operating procedures?

Frequency use on incidents is a challenging management predicament, lots of activity and many resources equates to busy tactical frequencies. Busy tactical frequencies on incidents, however, are not necessarily communication problems, but may be linked to coordination or **planning problems**. One way to prevent overloaded frequencies may be to request additional radio frequencies sooner rather than later on emerging incidents and to develop a plan for the use of additional frequencies.

- How can you **plan** for emerging incident communications, to provide for more effective communications?
- What points should be addressed when **briefing incoming resources** on incident communications?
- Can you give an example of an **incident communications briefing**?
- How can the use of dedicated command, tactical, and crew nets assist with the implementation of effective communications? What are the appropriate uses of these frequencies?

Firefighters pride themselves on ingenuity, adapting to and overcoming challenges, and creating opportunities. For example, using available technologies (cell phones, satellite phones, and data transmission devices) to transmit and receive information reducing the amount of time radio frequencies are tied up on incidents. Use of available technologies in this way has both positive and negative aspects. Communications technology aspects that need to be planned and mitigated for include: one to one communications, coverage, powering devices, lack of contact information, and adhering to national policies for the use of alternative communications devices on incidents.

- What non-radio communications devices have you used or have seen used on an incident? What are the benefits and consequences of using those communications devices on wildland fire incidents?
- How should **non-radio communications** be used on wildland fire incidents? Why?
- How might you mitigate or plan for the above communications challenges?

There is no fix all solution for these challenges, but prior planning, briefing incoming resources on the implementation of an incident communications plan, and using proper radio etiquette are effective ways to mitigate unnecessary chatter on tactical frequencies and to promote essential information sharing through various communications technologies.

<b>DVD/ VHS Module</b>	<b>DVD/ VHS Action</b>	<b>Content</b>	<b>Facilitator Tasks</b>	<b>Refer To</b>
 <p>Communications Update was taken from the WFSTAR website:  <a href="http://www.nifc.gov/wfstar/hottopics/communications.html">http://www.nifc.gov/wfstar/hottopics/communications.html</a></p> <p>Visit the Wildland Fire Communications website at:  <a href="http://www.fireradios.net/">http://www.fireradios.net/</a></p>				

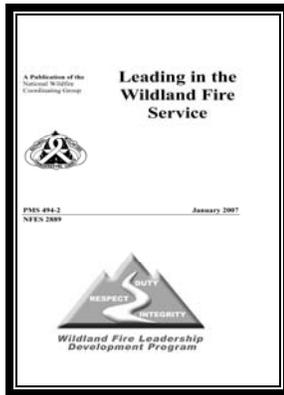
DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
Topic 2 Burnover Interview	Play	<ul style="list-style-type: none"> <li>– Topic introduction</li> <li>– Burnover and fire shelter deployment survivor interview <ul style="list-style-type: none"> <li>• Mike Friend</li> </ul> </li> </ul>	<p><b>Facilitator Note:</b> This <b>optional</b> topic includes a 22-minute interview with Mike Friend, I-90 Complex burnover survivor. The video was produced by the Lessons Learned Center.</p>	
	Stop		<p><b>Facilitator Note:</b> The information presented below is an excerpt from the <i>I-90 Complex Accident Investigation Report</i>.</p>	SWB-36
<p><b>FIRE SHELTER DEPLOYMENT</b> I-90 Complex, Lolo National Forest Northern Rockies Missoula, Montana August 10, 2005</p> <p><i>(This is the first known deployment of the New Generation fire shelter.)</i></p> <p>Negative Causal Factors~</p> <ul style="list-style-type: none"> <li>• The time allowed for the dozer to travel to the safety zone was based on fire behavior observed previous days and up to that point, they did not anticipate the fire behavior which actually occurred.</li> </ul> <p> The Negative Causal Factors excerpt was taken from the I-90 Complex Accident Investigation Report. The report can be viewed in its entirety at: <a href="http://www.wildfirelessons.net/documents/I-90_Report.pdf">http://www.wildfirelessons.net/documents/I-90_Report.pdf</a></p>				

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DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
<b>Topic 3</b> <i>Get to Your...</i>	Play	– <i>Get to Your Destination Safely</i>	<b>Facilitator Note:</b> This <b>optional</b> topic includes a 60-second video produced by the United States Forest Service.	
	Stop		<b>Facilitator Note:</b> There is no supporting information provided in the Student Workbook.	

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DVD/ VHS Module	DVD/ VHS Action	Content	Facilitator Tasks	Refer To
<b>Topic 4</b> What's New in Leadership			<p><b>Facilitator Note:</b>            This is an <b>optional</b> topic that has no video attached.</p> <p><b>Facilitator Discussion Points:</b>  <i>Leading in the Wildland Fire Service</i> was released in January 2007 and will be included in the <i>Wildland Fire Book on Books</i> Reading Program. The publication is available on the leadership website.</p> <p>Encourage participants to nominate deserving individuals or groups for the Paul Gleason Lead by Example Award.</p>	SWB-37



**Preface Excerpts:**

This book expresses the fundamental leadership concepts of the wildland fire service. It outlines the framework, values, and principles that guide wildland fire leaders in providing leadership across a broad range of missions. The concepts in this book are universal to every person in the wildland fire service—from first year employee to senior manager.

This book does not state policy. It cannot provide black-and-white answers to the unlimited volume and variety of situations a leader will face. Instead this book simply outlines the broad concepts of leadership by which expectations of leaders may be established and performance of leaders may be judged. It is intended to make better leaders of us all.

**Do you know an individual or group who has shown exceptional leadership?**

*Nominate them for the Paul Gleason Lead by Example Award.*



See <http://www.fireleadership.gov> for more information.

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# INTERNET WEBSITE LINKS

[http://www.blm.gov/nifc/st/en/prog/fire/training/fire\\_training/projects/refresher.html](http://www.blm.gov/nifc/st/en/prog/fire/training/fire_training/projects/refresher.html)

Website for 2001, 2002, 2003, 2004, 2005, 2006, 2007, and 2008 Fireline Safety Refresher (Student Workbook and Facilitator Guide)

[http://www.nifc.gov/safety\\_study/index.htm](http://www.nifc.gov/safety_study/index.htm)

- ◆ 6-Minutes for Safety
- ◆ SAFENET
- ◆ Radio Education and Information
- ◆ FireFit
- ◆ Accident Investigation Resources

[www.nifc.gov/wfstar/index.htm](http://www.nifc.gov/wfstar/index.htm)

(Also accessed through the Safety link on the NIFC home page)

- ◆ Wildland Fire Safety Training Annual Refresher (WFSTAR)

What's New for 2008

- 2008 Annual Fireline Safety Refresher Video
- Basic Firing Operations Training Package
- Fire Vehicle Driver Orientation
- Human Factors
- FireFit
- Wildland Firefighter Fatalities in the US, 1990-2006 (PMS 841)
- Home Grown Programs

2008 National Emphasis Topic:

- Thinking Ahead

2008 Hot Topics:

- Incident Communications
- WUI Safety
- Risk Management for Alternative Strategies and Tactics
- How Can We Improve Aviation Safety?
- Why Submit a SAFENET?

[www.nwccg.gov/pms/pms.htm](http://www.nwccg.gov/pms/pms.htm)

- ◆ Qualifications – PMS 310-1
- ◆ Taskbooks
- ◆ ICS Training and Forms
- ◆ Job Aids

[www.nwccg.gov/pms/pubs/pubs.htm](http://www.nwccg.gov/pms/pubs/pubs.htm)

- ◆ National Fire Equipment System Catalog – Part 2 Publications 2007 edition Catalog Update (November 19, 2007)
- ◆ Your Fire Shelter, video, 2001, NFES 1568
- ◆ Your Fire Shelter: 2001 edition, pamphlet, PMS 409-2, NFES 1570
- ◆ Incident Response Pocket Guide, PMS 461, NFES 1077
- ◆ Fireline Handbook, PMS 410-1, NFES 0065
- ◆ Interagency Standards for Fire and Fire Aviation Operations - 2008, NFES 2724
- ◆ The New Generation Fire Shelter (2003), pamphlet, NFES 2710, PMS 411
- ◆ The New Generation Fire Shelter, video, VHS (2003), NFES 2711
- ◆ The New Generation Fire Shelter DVD (2003), NFES 2712

[www.firelineleadership.gov](http://www.firelineleadership.gov)

Interagency Wildland Fire Leadership Development Program's website

(Leadership Toolbox includes information regarding Staff Rides, STEX/TDGS, Self-Development Plan)

[www.wildfirelessons.net](http://www.wildfirelessons.net)

Wildland Fire Lessons Learned Center's website

- ◆ Library – contains thousands of reports and other documents sent in by wildland fire professionals from around the world
- ◆ Case Studies

[www.nifc.gov/nicc/predictive/predictive.htm](http://www.nifc.gov/nicc/predictive/predictive.htm)

Predictive Services' website

- ◆ Intelligence, Weather, Fuels & Fire Danger
- ◆ Daily, 7-Day Fire Potential, Monthly, and Seasonal Outlooks

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# ANNUAL FIRELINE SAFETY REFRESHER FACILITATOR COMMENTS

- How many seasons have you worked as a firefighter? \_\_\_\_\_
- What agency/department do you represent? \_\_\_\_\_
- What is your primary function in fire suppression:  
 Line Firefighter  
 Fireline Supervisor  
 Other IMT Section  
 In Support of Fires  
 Management

- Was the Facilitator Guide useful for your presentation? Suggest improvements.

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- How can the refresher be improved?

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- Which program delivery format would you prefer?  VHS  DVD

*If you have crew videos, season summaries, or other training materials that you would like to be considered for inclusion in future refresher training programs, please contact Scott Anderson at the addresses below.*

**Facilitator, please return this form AND student evaluation forms to the address below. Comments by e-mail are welcome.**

**BY MAIL:** NWCG Training Development  
Attn. Scott Anderson  
3833 S. Development Ave.  
Boise, ID 83705

**BY FAX:** (208) 387-5378  
**E-MAIL:** Scott\_Anderson@nifc.blm.gov

**Additional Comments:**