2006 Fireline Safety Refresher Training

Student Workbook

Does Your Perception Match Reality?

COURSE MODULES

DESCRIPTION	GROUP DISCUSSION/ EXERCISE	PAGE
Module 1—Introduction	North Valley Engine Burnover, NV Surviving Fire Entrapments	4
Module 2—Leader's Intent, Sand Table Exercises, and After Action Reviews	STEX 1 & 2	10
Module 3—Standard Firefighting Orders During Initial and Extended Attack	Safety Starts with the IC	15
Module 4—Contingency Planning and Prescribed Fire	Mississippi Meadows Prescribed Burn, Minnesota	20
Module 5—All-Risk Assignments	Field Operations Guide Hurricane Katrina Final SAT Report	22
Module 6—Fighting Fire in the Southeast	Golden Gate Fire, Florida Common Threads	29
Module 7—Wildland-Urban Interface	Preplanning with Cooperators	31
Module 8—Safety Zones	Safety Zone Analysis	33
Module 9—Innovations	2/7 Tool	38
Module 10—Radio Communication	Radio Narrowband Briefing Paper http://radios.nifc.gov	43
Module 11—Conclusion & New Generation Fire Shelter	Fire Shelter Deployment Practice	45

INTRODUCTION

This year's fireline safety refresher training, *Situational Awareness—Does Your Perception Match Reality?*, 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.

EXPECTATIONS

Instructors should facilitate a quality refresher that engages all students no matter their ICS qualification or experience background. 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.

Students requiring a closed-captioned program should notify their facilitator. A closed-caption version of the product is only available in VHS format.

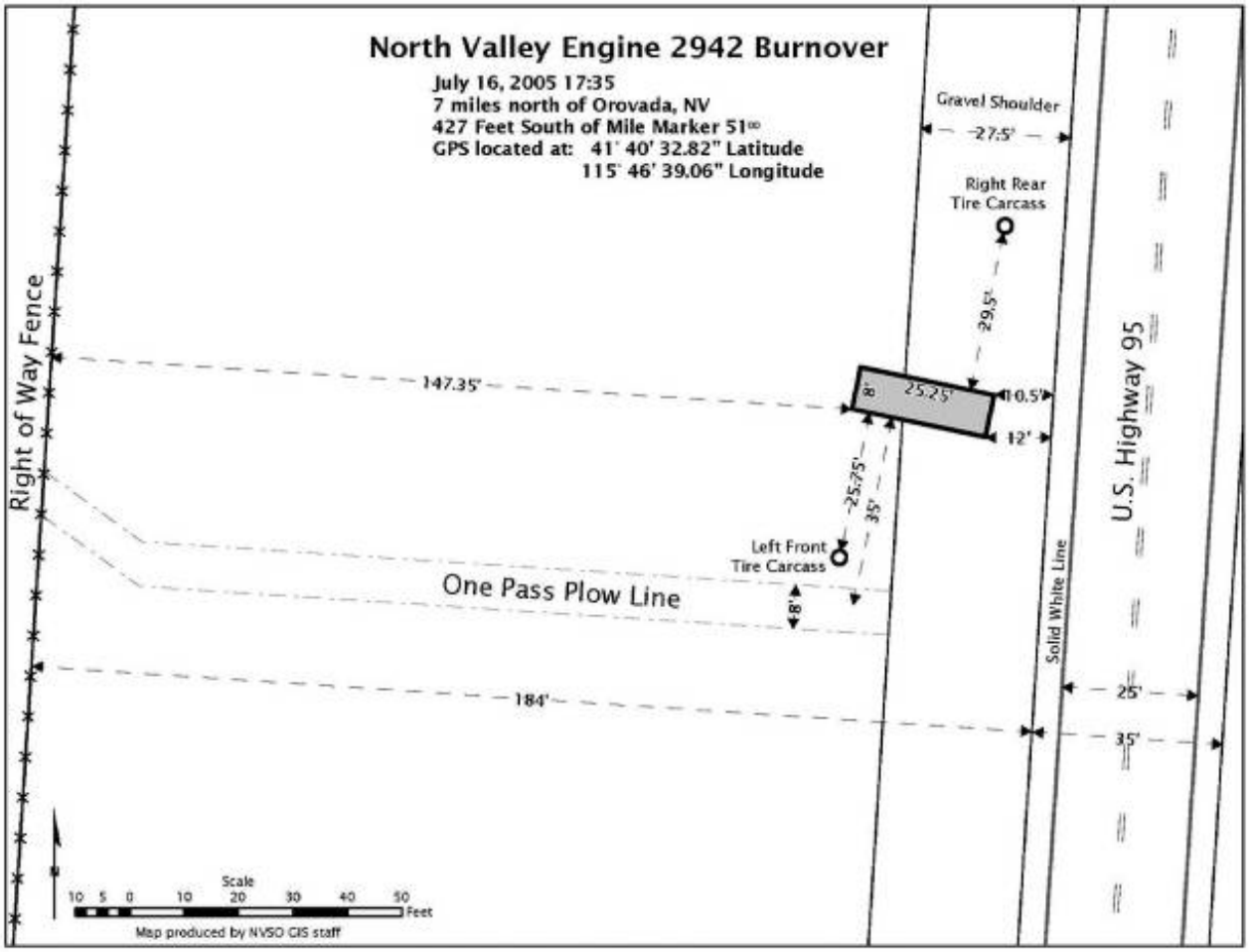
PREREQUISITES

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

COURSE OBJECTIVES

Upon completion of this training, the student will be able to understand and apply general wildland firefighting principles to simulated fire scenarios using the Incident Response Pocket Guide.

MODULE 1—Introduction



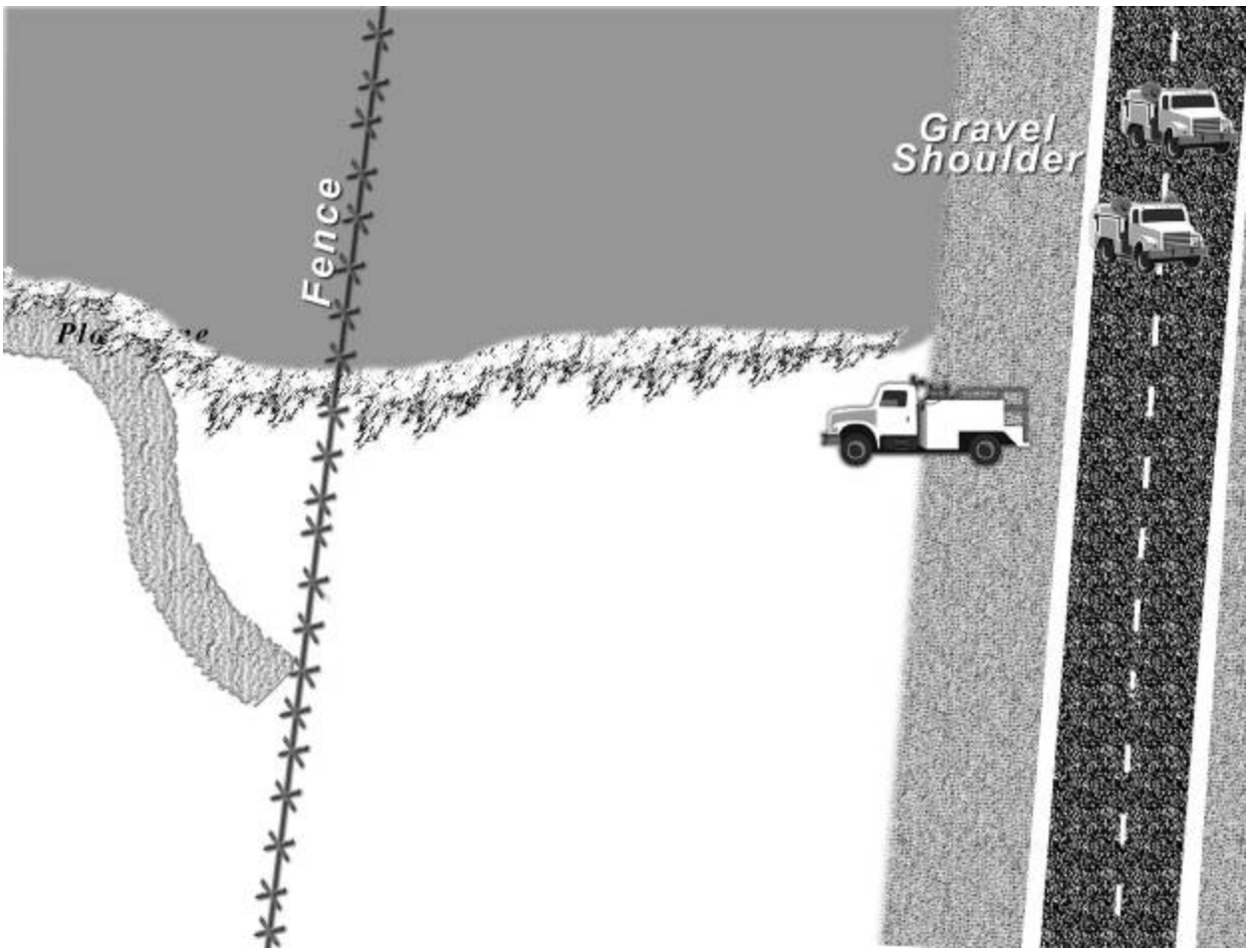
(Longitude should be 117' instead of 115')

Regarding the E-2942 burnover . . .

"E-2942 had barely pulled off the road to commence direct mobile attack on the one- to three-foot flames. It was routine, including our state of collective readiness, yet at three-foot flames turned into fifteen-foot flames in an instant and overwhelmed our typical risk management scheme. The calculated risks that we acknowledge and train to mitigate simply got the best of us that day. Thankfully, it was just an engine and not a life."

Chris Friar, 2961 crewmember and qualified Engine Boss

MODULE 1—Introduction
Exercise 1 – North Valley Engine Burnover



Group Exercise:
After reviewing the excerpt from the North Valley Incident—Fact Finding Review on the next page, discuss the following question in your group:

- Was there a breakdown in situational awareness in this scenario, or was this engine burnover unavoidable?

NORTH VALLEY INCIDENT – FACT FINDING REVIEW

FINDINGS

- The 10 Standard Fire Orders and 18 Watch Out Situations were adhered to.
- Work/Rest Guidelines were followed.
- Proper tactics were employed by experienced firefighters.
- All firefighters met appropriate and current IQCS standards.
- No shelter deployment or entrapment occurred.
- All firefighters interviewed were aware that a Red Flag Warning had been issued by the National Weather Service the morning of July 16. The warning was read over the radio by Central Nevada Interagency Dispatch at approximately 1030 hours.
- A review of Engine 2942's maintenance records revealed nothing out of the ordinary.
- It would appear that the diesel motor stall was partially caused by the intake of oxygen-depleted air/flames into the air filter/turbocharger assembly.
- Contributory factor to the rapid ignition of Engine 2942 was pre-heating of the tires, motor, and other mechanical components during the response to the fire from Winnemucca.

CONCLUSIONS

- The Fact Finding Team (Team) determined that this event constitutes an Incident with Potential as outlined in the Interagency Standards for Fire and Fire Aviation Operations (19-6).
- The Team, in conjunction with the Field Office and State Fire Management Officers, concluded that there would have been no added benefit from requesting a Serious Accident Investigation Team to be ordered.

RECOMMENDATIONS

- Have all Great Basin firefighters re-visit and re-emphasize all safety bulletins previously prepared and released in the Great Basin.
- Emphasize what we know to date: THIS IS NOT A "NORMAL" FIRE YEAR! Previous years' tactics must be re-evaluated to ascertain if they remain viable or should be re-considered, or even discarded for this year.
- The fuels and fuel loadings may exceed what Nevada witnessed in 1999. Revisit all of our lessons learned from the post-1999 season and employ tactics and strategic thought processes based on those lessons.
- Ensure safety briefings on all units in order to revisit the "Common Denominators…" booklet.
- All units should review the lessons in S-290 related to cold front passages and the potential shifting/variable winds after a passage has occurred.
- Personnel responding to wildland fires involving vehicles should confine their actions to the wildland portion of the incident and keep a safe distance away from any burning vehicles.
- The Equipment Development Unit at the National Office of Fire and Aviation should evaluate the placement of the air intake assembly on this model engine.

MODULE 1—Introduction
Exercise 2 – Surviving Fire Entrapments

Group Exercise:
After reviewing the excerpt from *Surviving Fire Entrapments – Comparing Conditions Inside Vehicles and Fire Shelters*, discuss the following question in your group:

- What factors should you consider before choosing to stay in an engine during a burnover?

Surviving Fire Entrapments - Comparing Conditions Inside Vehicles and Fire Shelters

Richard Mangan, Program Leader
USDA Forest Service, MTDC

Discussion

This project's primary purpose was to gain quantifiable data on conditions in engine cabs and fire shelters under identical, real-life conditions. However, we made a number of qualitative observations that are relevant to survivability in an entrapment. They include:

- In most fuel types (besides grass and light brush), the temperature and radiant heat flux generally increase with the height above the ground. This is consistent with the principle that heat rises. This observation has special relevance considering the height of an engine cab compared to the height of a fire shelter.

- Heat from the passage of the fire front appears to be retained in the vehicles longer than in the fire shelter or other items of PPE, indicating that the metal in an engine may act as a "heat sink."

- When fire comes up a steep side slope, it appears to go over the top of an engine and under the chassis, creating an eddy on the back side that draws heat and flame. A firefighter taking shelter behind an engine parked on a steep slope would not be protected from heat or flame. This effect was demonstrated in October 1996 when an engine was burned over during the Calabasas Incident in southern California.

- Video footage shows that a large volume of smoke seeps into the engine cab, even when the cab's windows are tightly rolled up. This occurred under low-temperature conditions when the cab might appear to be survivable.

- When the outside doors of an engine cab are subjected to high radiant heat loads, the petroleum-based plastics and sound-deadening materials in the door panels and dashboard volatilize. The smoke generated by this volatilization may cause both short-term and long-term health effects on firefighters without respiratory protection, and will create conditions that force them from the cab into the fire area.

- During the moderate-intensity, short-duration exposure of the Los Angeles County tests, exterior components of the engines either caught fire or experienced some melting. Under higher intensity or longer duration exposures, the engine could catch fire and continue burning when conditions outside would be harmful to a firefighter attempting to leave the engine.

- For these tests, both the engines and fire shelters were placed in the area most likely to receive the highest exposure to the flaming front and the radiant heat flux. In a real-world fire entrapment, moving just a few feet back from the oncoming flaming front–especially on a road cut on steep slopes–appears to significantly reduce the effect of temperature and radiant heat flux on both the individual firefighter and an engine.

- Because of safety concerns during testing, the gas tanks on all the engines were empty. In an actual fire operation, damage to the fuel tanks during a burnover could increase the danger to firefighters in or near an engine.

- Observation of the exposed PPE indicated that under experienced radiant heat loads, the protective characteristics of the clothing and personal protective equipment appear to offer adequate levels of protection for an entrapped firefighter who has neither a shelter nor an engine for protection.

- The temperature difference between the 1-inch (3-cm) and 12-inch (30-cm) levels in the fire shelters reinforces the need to encourage entrapped firefighters to get on the ground and to keep their face and mouth as close to the ground as possible, protecting their respiratory system.

- Since the test engines were drained of gasoline or diesel fuel, the engine's motors could not be left running during the burnover to assess the effect of reduced oxygen on engine performance. Experience during the recent Calabasas entrapment showed that an engine became "oxygen starved" and quit running in a burnover situation. Firefighters hoping to escape a burnover by driving away in an engine should consider this possibility.

- Under high heat loads, tempered glass in the cab's windows may break out. This may occur when the difference in temperature inside the cab and the temperature outside is only 4 °C. Consideration should be given to using safety glass for greater levels of protection. In a real fire entrapment or burnover, the human dimension is a critical factor:

- What is the experience and training of the individuals involved? Does their frame of reference (experience) allow them to recognize the situation they are in, and make the appropriate response?

- Do the firefighters have knowledge of all the pertinent factors? In the Wenatchee Heights entrapment, Fire Chief Rick West thought he knew the fuel conditions (grass), but was unaware of the woody component from apple orchard trimmings. That fuel resulted in a high-intensity, long-duration flame front that compromised his

safety in the cab of the engine. When he was forced to flee the engine, he suffered serious burns over much of his body.

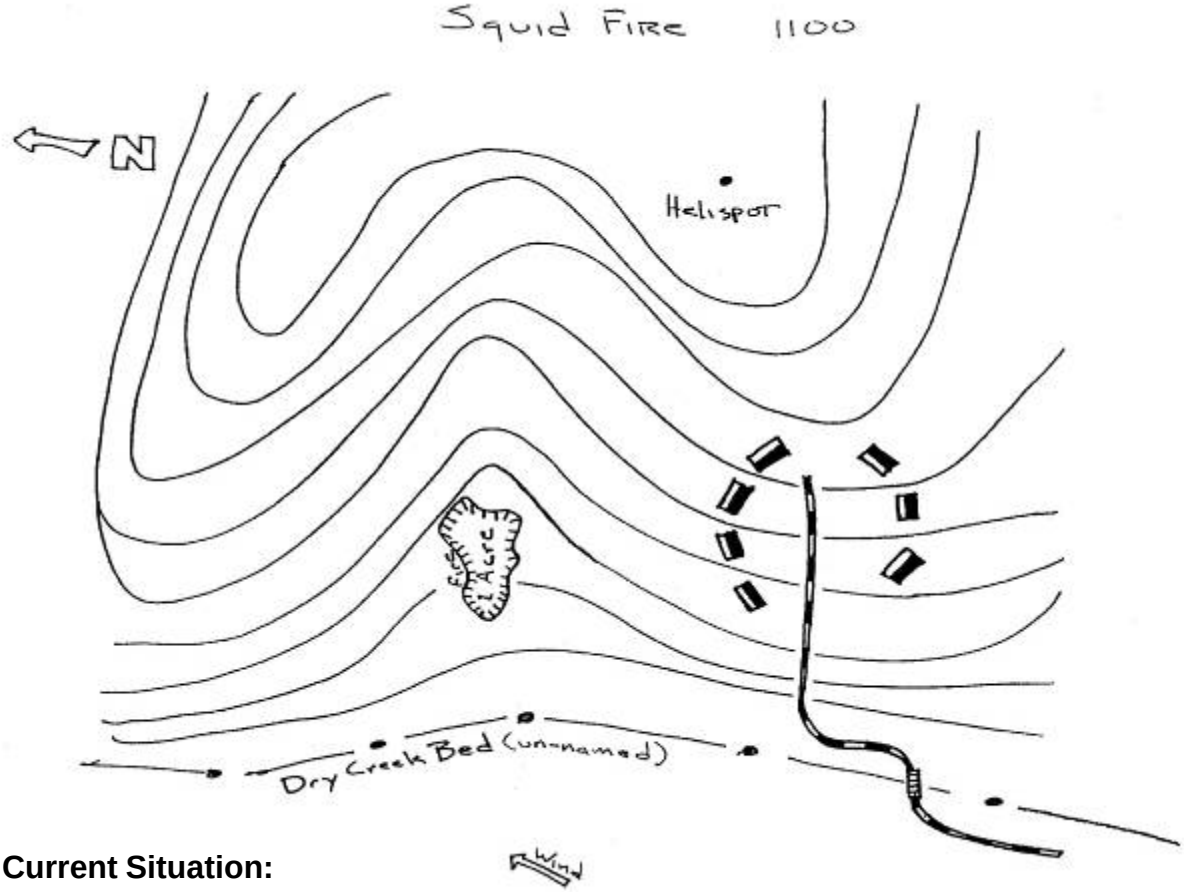
- How much time is available for the critical decision? Can you get all the exposed firefighters into an engine cab safely in less than the 20 to 25 seconds needed to deploy a fire shelter?

- Have firefighters considered the need for an adequate Safety Zone early on during the fire suppression, or do they consider their engine or fire shelter to be their "Survival Zone?"

- In 1996 on the Calabasas Fire in southern California, firefighters seeking shelter in their engines were at risk when the flame front curled around the vehicle, reaching firefighters who were seeking shelter behind the engine.

MODULE 2—Leader's Intent, STEX and After Action Reviews

Exercise 1 (Video Participants Only)



Current Situation:

Date/Time: July 27, 1100 hours

Tactical Assignment: Initial attack

Fuels & Topography: Ponderosa pine with light grass under story

Fire Conditions: Size, 1 acre; light smoke column present; light fire activity; perimeter, 25% active

Present Weather: Temperature, 84ºF; RH, 20%; winds relatively calm, SW at 3-5 mph

Weather Forecast: Temperature, 98ºF; RH, 18%; winds, NW at 10-15 mph by 1500

Resources on Hand: Helitack (5 passengers)

Resources Available: 2 Type 4 federal engines, 1 VFD engine (Mud Flap) and a helitack crew (Boundary Waters)

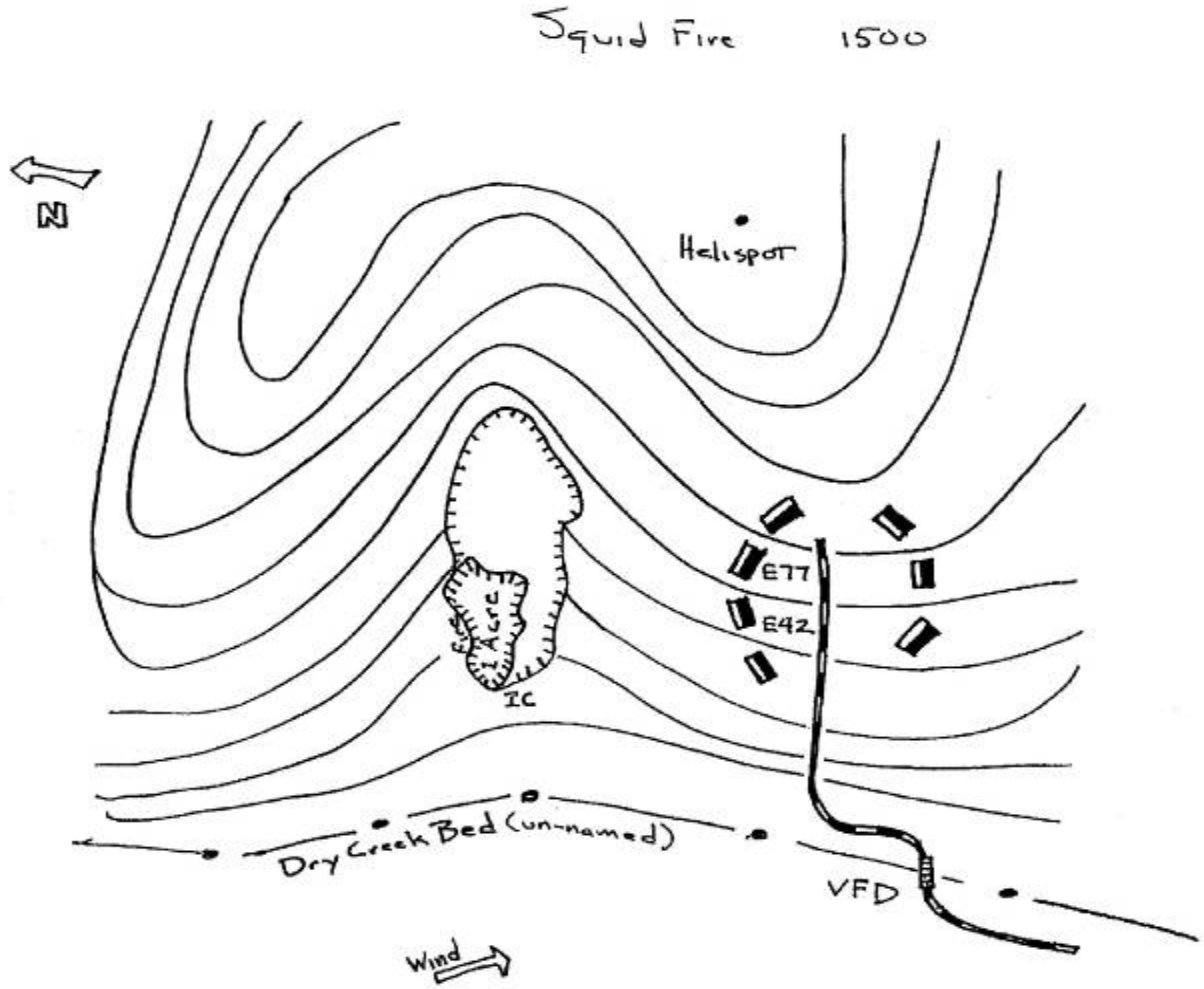
Group Exercise 1:

Your helitack crew has just landed on the helispot above the fire. Take three (3) minutes to formulate your plan. Select one of your group members to act as an ICT5.

- Refer to the IRPG Briefing Checklist.
- ICT5: Present an operational briefing to your crew including leader's intent and verbally deploy your resources.

MODULE 2—Leader's Intent, STEX and After Action Reviews

Exercise 2 (Video Participants Only)



Group Exercise 2:

The time is 1500 hours, and the fire has grown to 4 acres. The temperature has reached 98º, RH is 18%, and winds are from the NW at 10-15 mph. A second helitack has arrived, and the new IC has taken command.

- In your group select an ICT4 who will provide a radio briefing to the FMO/dispatch (have another group member play this role).

BRIEFING CHECKLIST
(inside back cover of the IRPG)

Situation

- ð Fire name, location, map orientation, other incidents in area
- ð Terrain influences
- ð Fuel type and conditions
- ð Fire weather (previous, current, and expected)
  - Winds, RH, Temperature, etc.
- ð Fire behavior (previous, current, and expected)
  - Time of day, Alignment of slope and wind, etc.

Mission/Execution

- ð Command
  - Incident Commander/Immediate supervisor
- ð Leader's intent
  - Overall objectives/strategy
- ð Specific tactical assignments
- ð Contingency plans

Communications

- ð Communication plan
  - Tactical, Command, Air-to-ground frequencies
  - Cell phone numbers
- ð Medevac plan

Service/Support

- ð Other resources
  - Working adjacent and those available to order
  - Aviation operations
- ð Logistics
  - Transportation
  - Supplies and equipment

Risk Management

- ð Identify known hazards and risks
- ð Identify control measures to mitigate hazards/reduce risk
- ð Identify trigger points for re-evaluating operations

Questions or Concerns?

AFTER ACTION REVIEW

The climate surrounding an AAR must be one in which the participants openly and honestly discuss what transpired, in sufficient detail and clarity, so everyone understands what did and did not occur and why. Most importantly, participants should leave with a strong desire to improve their proficiency.

- An AAR is performed as immediately after the event as possible by the Personnel involved.
- The leader's role is to ensure there is skilled facilitation of the AAR.
- Reinforce that respectful disagreement is OK. Keep focused on the *what*, not the *who*.
- Make sure everyone participates.
- End the AAR on a positive note.

What was planned?

What actually happened?

Why did it happen?

What can we do next time?
(Correct weaknesses/sustain strengths)

LEADER'S INTENT:

- Should define the overall purpose and end state for the incident. State what "success" looks like.
- Must be conveyed to subordinates, and is best defined as task, purpose, and end state.
- Should empower subordinates to think for themselves.

OBJECTIVES:

- Should be developed using all the information received from the in-briefing and gathered during the situational awareness process.
- Should be prioritized based on leader's intent.
- Should be S.M.A.R.T.

S-pecific
M-easurable
A-ttainable
R-ealistic
T-imely

STRATEGY:

- Should convey plan of action.
- Should meet the above objectives.
- Based on size-up, situational awareness.

TACTICS:

- Specific actions by resources to implement/execute strategy.
- Based on hazard and risk assessment

"The essence of an intent statement should communicate what the assignment is; why I am doing it; and your vision of what 'RIGHT' should look like at the end of the day . . .and it should allow me the latitude to take advantage of unforeseen opportunities and adapt to overcome unforeseen barriers."

Jim Cook – former Hotshot supervisor and NWCG Leadership Committee member

MODULE 3—The Standard Firefighting Orders During Initial and Extended Attack

Group Exercise:

After reviewing the article, *Safety Starts with the* IC, discuss the following questions in your group:

- How do you utilize the Standard Firefighting Orders in your decision making process on the fireline?
- Do you see the Standard Firefighting Orders as a process or a checklist?

SAFETY STARTS WITH THE IC
(Improving Safety during Initial Attack and Extended Attack)
Michael Klug

The 2004 fire season is upon us, and firefighter safety on the fire line remains a prime concern. Studies show half of all fatal entrapments occur during initial attack, while another third occur on extended-attack (Type 3, 4 and 5) fires like the South Canyon and Thirty-mile fires.

Why do the overwhelming majority of fatal burnovers occur on initial- and extended-attack fires, and more importantly, what can we do to improve the incident command of these fires in order to improve firefighter safety? The following are a few suggestions on how to improve safety during initial-attack and extended-attack operations by establishing incident command in accordance with the 10 Standard Fire Orders.

1. Stay informed on fire weather conditions & forecasts.

When crews check in with the incident commander (IC), their briefing should include current fire behavior and weather, along with any anticipated changes. Red-flag alerts, fire-weather warnings or significant weather changes need to be included as well. The IC must quickly relay any new information critical to firefighter safety to all fire crews, then ascertain that each crew received the update.

2. Know what your fire is doing at all times.

Depending on the size of the fire, ICs should instruct one or more crews to take weather observations. The firefighters who take these observations should broadcast the information over the tactical net and include the temperature, humidity, wind speed and direction, and other general observations in their broadcasts. They should also report trends since the last observation. *Example:* "The temperature is 97 degrees, up 5 degrees from 1100 HRS." They should take weather observations hourly unless fire conditions are deteriorating or crews are engaged in back fires, downhill line construction or other higher-risk tactics. In those situations, firefighters should take weather observations every 30 minutes or even every 15 minutes.

3. Base all actions on current & expected fire behavior.

During initial attack, there is a sense of urgency to put the fire out quickly. As a result, first-arriving firefighters may put themselves at risk by attacking the fire without an anchor point or by attempting a frontal assault. ICs must ensure initial-attack forces use tactics appropriate for the fire's behavior. They should also anticipate how the fire may change as the day heats up or the winds change, and adjust tactics accordingly.

4. Identify escape routes & safety zones, & make them known.

When firefighters are fighting major fires, they are very safety conscious. However, initial-attack fires are small and often appear routine, so it's easy for firefighters arriving to a small fire to jump out of the truck and go to work without giving safety zones and escape routes much thought. However, small fires, seemingly innocent fires and fires in the mop-up stage can turn deadly.

The initial-attack IC should never assume the crew knows the locations of their escape route and safety zone, so the IC should make escape routes and safety zones part of the crew briefing. As crews progress along the fireline, the IC should reevaluate escape routes and safety zones, and inform everyone when any changes are made.

If early warning signs of changing fire behavior occur, crew supervisors must regroup their crew and reevaluate their situation. If fire conditions deteriorate, crew supervisors need to maintain crew cohesion and communications as they make their escape. At the safety zone, crew supervisors must keep their crew together and account for all crewmembers.

5. Post lookouts when there is possible danger.

By the time firefighters recognize dangerous fire conditions, they may not have enough time to escape. *Example:* The 1994 South Canyon Fire was a slow-spreading Type-3 fire, and crews did not post lookouts. As firefighters constructed line down into the canyon, they did not notice the early warning signs of deteriorating fire conditions, which began more than an hour before the fire blew up and overran 14 firefighters.

ICs on slow-spreading Type-3 and Type-4 fires must ensure that crews routinely post lookouts at strategic locations around the fire. The best lookouts are experienced firefighters with a good knowledge of fire behavior and weather. Lookouts should work from a vantage point with a good view of their assigned area. Aircraft can serve this function for fires burning in flat terrain. Lookouts alert fire crews to spot fires, torching, fire whirls, dust devils, cumulus clouds, lenticular clouds, wind shifts and other early warning signs of changing fire conditions. Lookouts usually take the weather observations as well. Through these observations, they can warn firefighters of danger in time for them to get to safety.

6. Be alert. Keep calm. Think clearly. Act decisively.

Contrary to what we may like to think, firefighters are not supermen and superwomen. Sometimes they push themselves too hard. During initial attack, firefighters may work long hours, late into the night or next morning, until they are relieved. In addition, firefighters arriving at fires are not necessarily rested—they may have been up the previous night on another fire, for instance.

Tired firefighters are more prone to accidents and mistakes; they may not recognize the early warning signs of changing weather or fire behavior. An IC needs to know how rested their crews are and what kind of support they might need. Travel time to a fire can prove lengthy, so ICs should plan ahead to ensure their crews have food, fluids and relief. If relief is not available, ICs shouldn't leave crews on the fire line indefinitely. Well-cared for firefighters are safer and more productive.

7. Maintain prompt communications with your forces, your supervisor & any adjoining force(s).

Good communications is often the first thing to break down during initial attack, but it's essential for firefighter safety. Communications proves especially challenging when different agencies—wildland, municipal and volunteer fire agencies—respond to the same fire because crews from different agencies may lack shared radio frequencies, have incompatible radio systems or use agency-specific frequencies. Plus, when houses are threatened or a major fire is developing, the enormous amount of radio traffic can quickly overload a communications system. Rugged terrain can also prevent fire crews from calling out or receiving transmissions.

How do we ensure good communications? It starts with the initial dispatch. The dispatcher with jurisdiction for the fire assigns command and tactical radio frequencies, and announces these frequencies to all responding units. All mutual-aid forces should also be advised through their respective dispatch centers. From that point on, all units communicate on the assigned radio frequencies. Some states and counties ensure good incident communications by establishing master mutual-aid frequencies that all fire agencies program into their radios.

When the tactical radio frequency is overloaded with fireline traffic, other tactical frequencies should be established. For instance, each division can be assigned a separate tactical frequency to relieve congestion. If fire crews working in canyons or other dead spots can't call out to the command post, aircraft or lookouts on high points can relay messages.

Finally, firefighters should check their radios before heading to the fireline to ensure they are functioning properly and are set to the right frequency, and they should carry spare radio batteries. If individual crews use their crew net to communicate amongst themselves, they need to closely monitor the assigned tactical net so they do not miss important information or warnings.

8. Give clear instructions & ensure they are understood.

Often during initial attack there is no command post because the IC is on the fireline. As a result, it's difficult for fire crews to check in and obtain a briefing when they arrive on scene. The IC of the 1972 Bass River fire in New Jersey was an engine captain working on the end of a fire hose. As engines arrived, they contacted the IC by radio for instructions. When Engine 740 called for instruction, the IC told them, "Hit the line and turn right—that would be your right—and try to catch her. We might have to move out to the other side. There is a tractor and plow there on the line. Meet him and follow him down. When you get to him, let us know." The four men on Engine 740 were not heard from again. They were subsequently burned over and killed.

The IC should establish a command post, even if it's simply their vehicle. They should locate the command post at a strategic location where they can observe the fire, meet arriving units and communicate with fireline personnel. They should also advise dispatch and all units assigned to or en route to the fire of the command post location. Whenever the ICP moves, the IC should announce the new location over the radio.

As each fire crew arrives and checks in with the IC, the IC should inform them of the fire situation, safety concerns, their assignment, who they will work for and the tactical and command radio frequencies. The IC must also provide information on terrain, fuels and any special concerns, such as beetle- or frost-killed trees, structures, power lines or hazardous materials. This meeting needs to be in person to allow for questions, feedback and map checks.

9. Maintain control of your forces at all times.

Initial attack can be very chaotic as fire crews arrive and go to work, often without instructions or a clear overall picture of the fire. Often there aren't enough resources on scene, and a formal command organization may not be established yet. As a result, fire crews may engage in independent actions or freelancing. During multi-agency responses, agencies may not coordinate their efforts or might even establish separate command structures. There is a sense of urgency to stop the fire quickly, especially in the urban-interface areas. All of this places firefighters at risk.

On a Type-3 fire in northeastern Nevada, 40-mph winds suddenly blew through a fire camp. The IC quickly warned all fire line personnel that extreme winds were headed in their direction. An alert division supervisor ordered his crews to leave the fire line immediately and go to safety. He then contacted each crew supervisor to ensure that they received his instructions. Each crew calmly left the fire line and contacted the division supervisor when they reached safety. After the winds passed, the division supervisor again contacted each crew and ascertained that they were safe and all firefighters were accounted for. In this incident clear thinking and decisive action kept everyone safe.

Good command and control during initial and extended attack improves both safety and overall firefighting operations. This should begin with the arrival of the first fire crew. The first unit's engine captain or crew supervisor establishes incident command. The initial-attack IC then announces over the radio the name of the fire, who is in charge and size-up information. A "working command," in which the IC supervises a crew or

performs hands-on firefighting in addition to commanding the fire, can place too many demands and distractions on the IC. In this situation, the IC should transfer command when a more qualified person arrives, usually a chief officer not supervising a crew. The transfer of command is a formal process that occurs after a face-to-face briefing between the outgoing and incoming ICs, followed by a radio announcement that command is being transferred along with the name of the new IC.

A combination of federal, state or local fire agencies attack many fires. At a fire, all agencies must work together as one team, report to the same IC and use the same radio frequencies. Good coordination and working relations between all agencies are important for safe firefighting.

The IC should keep a complete list of all resources responding to, staging and working on the fire. This list must include each crew's location, the supervisor's name and the total number of crewmembers. This list will help the IC make tactical decisions, assignments and demobilization plans. More importantly, the list will help with firefighter accountability in the event the fire blows up or accidents occur.

10. Fight fire aggressively, but provide for safety first.

Summary

Unfortunately, many of the problems discussed occur all too frequently during initial and extended attack. While none of these solutions are new, they are not consistently practiced. We can improve safety during initial-attack and extended-attack fire operations by incorporating the Standard Fire Orders into incident command. This will enable firefighters to follow the most important fire order: *Fight fire aggressively, but provide for safety first.*

Michael Klug is a battalion chief with the Nevada Division of Forestry (NDF) with 25 years of wildland firefighting experience. He has served on the NDF State-wide Safety Committee and Great Basin Incident Management teams. He holds a Bachelor's degree in Forestry & Forest Fire Science from Colorado State University.

Permission to reprint this article for wildland firefighter training was granted by *Wildland Firefighter* magazine. The article can be found in the May 2004 issue.

MODULE 4—Contingency Planning and Prescribed Fire

Current Situation:

Date/Time: May 5, 2005; 1100 hours

Location: Chippewa NF, Minnesota

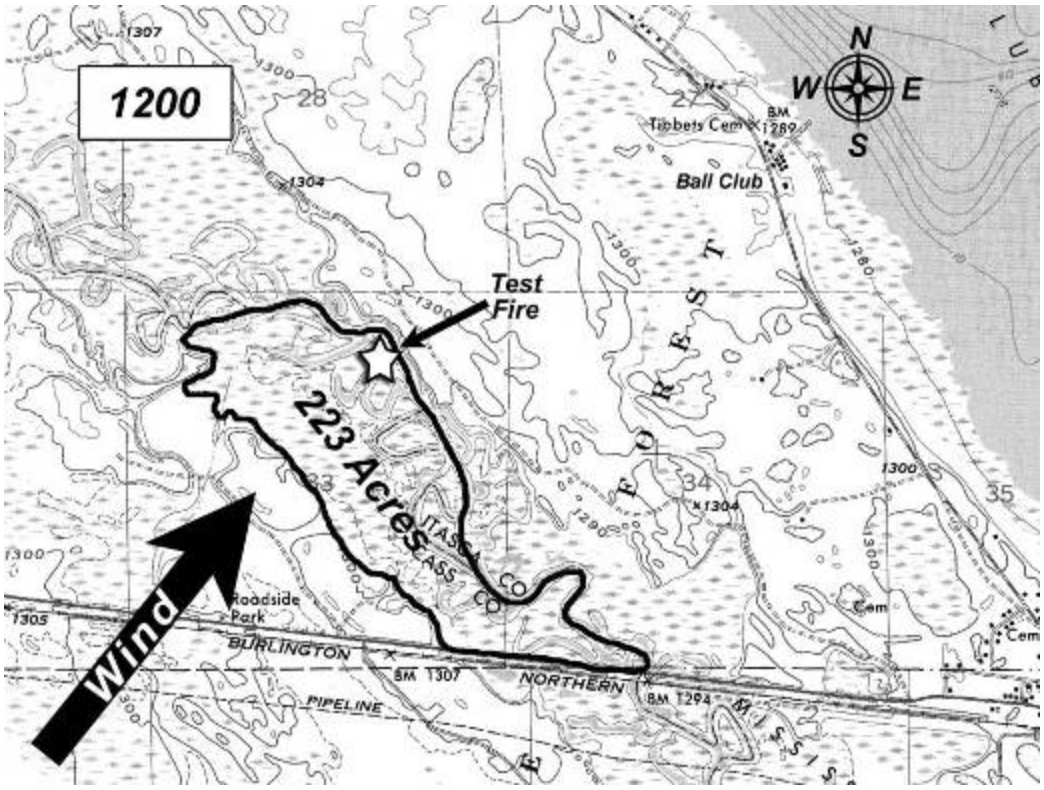
Tactical Assignment: Prescribed burn—223 acres

Fuels & Topography: Grass, flat ground bordered by the river on the east side

Weather Forecast: Temperature, in mid-60s; minimum RH, 44%; winds, SW at 6 mph with gusts to 10 mph; weather prediction for the duration of the burn, acceptable

Resources on Hand: Ignition crew, holding crew with hand tools and bladder bags, and boat crew with pump unit

Contingency Resources: Aerial observation and four engines—one ranger district engine (15-minute callback) and three other engines (2-hour callback) assigned to another burn

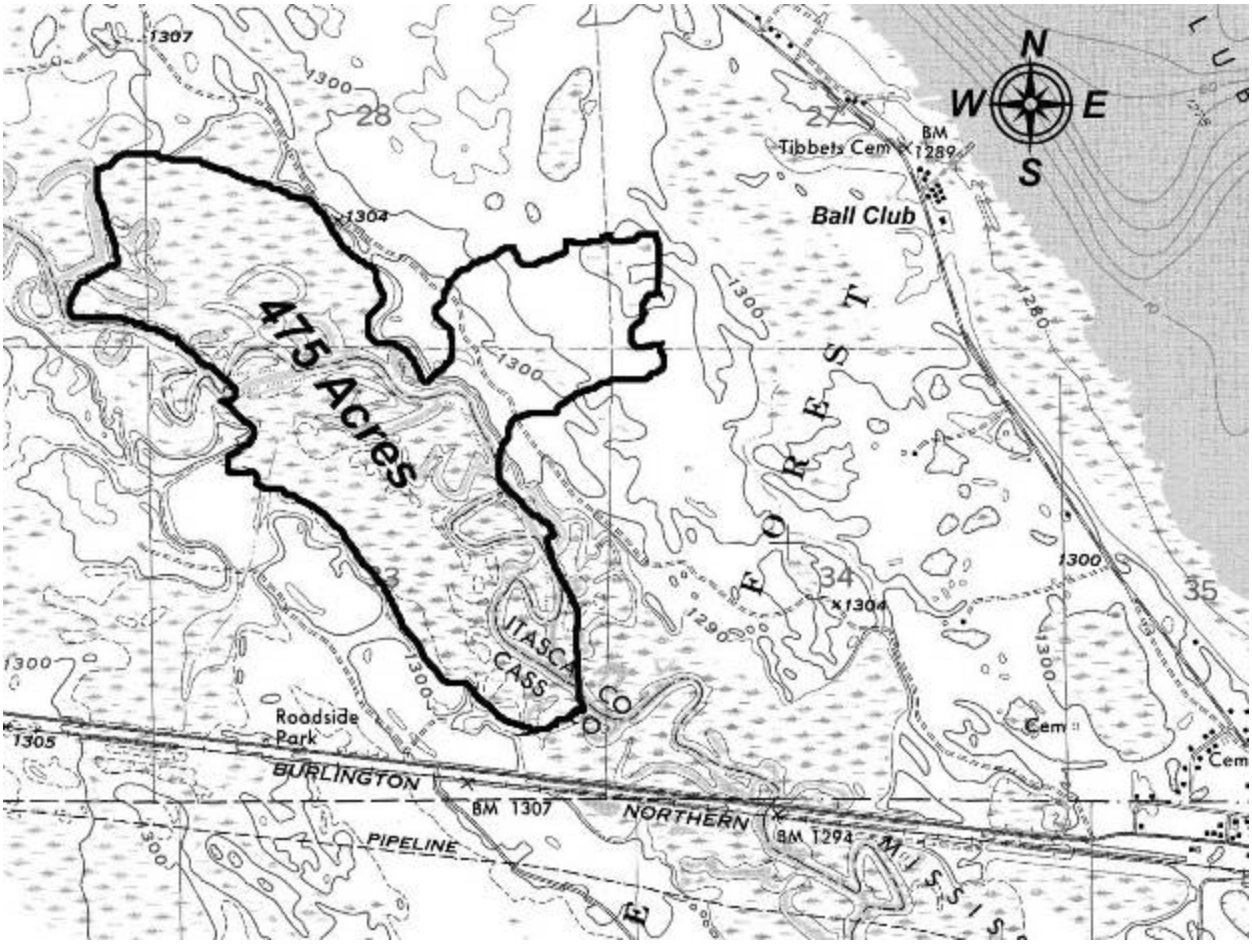


Group Exercise:

The time is 1200 hours. Assuming that the test burn is successful and you are proceeding with the burn, answer the following:

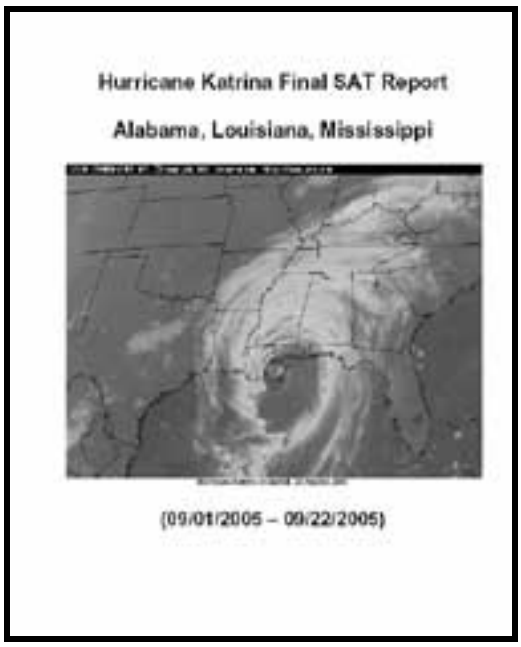
- How will you deploy the resources on hand?
- What will you say in the crew briefing?
- What is your contingency plan?

MODULE 4—Contingency Planning and Prescribed Fire
(Final Fire Perimeter)



P lan
A lternative
C ontingency
E mergency

MODULE 5—All-Risk Assignments



Web Site References:

- *Field Operations Guide*: http://www.usaid.gov/our_work/humanitarian_assistance/disaster_assistance/resources/pdf/fog_v4.pdf

- *Hurricane Katrina Final SAT Report*: http://www.myfirecommunity.net/documents/SAT_Report_Hurricane_Katrina.pdf

Group Exercise (Optional):

- From your own experience, discuss the challenges you have faced on non-fire assignments. What did you learn? How would you prepare in the future?

  OR

- Review and discuss the following excerpts from the *Field Operations Guide* and *Hurricane Katrina Final SAT Report*.

Field Operations Guide

G. Personal Health and Critical-Incident Stress

This section provides a guide to recognizing and meeting common physical and emotional problems encountered during disaster relief activities. Experience has shown that promoting and maintaining good health, especially by coping with the stresses encountered overseas, are the keys to successful performance.

1. Briefings

The most important key to personal health and safety is to follow briefings given by OFDA, the State Department, the DART Team Leader, the USAID Mission in-country, the U.S. Embassy or Consulate in-country, and affected-country contacts. They can provide up-to-date details on disease, sanitation, food and water safety, personal and property security, and other information to keep team members healthy and safe during the assignment. Team members should never knowingly put their lives in jeopardy. "Stay alert, keep calm, think clearly, and act decisively" should be their motto. Tasks should be accomplished by putting safety first.

2. Managing Culture Shock

Team members may experience two different but related types of stress. The first is culture shock, which comes from suddenly being placed in a foreign environment. The second is the emotional and physical impact that often comes from being immersed in a disaster. Between arriving in-country and reaching the disaster site, team members may experience classic culture shock. The team member is a foreigner and may be frustrated because of an inability to communicate with the local population; anxiety and frustration may erode his or her customary level of self-confidence. The team member should expect to be disoriented and confused and realize that this response is natural and often happens to others in similar situations. Patience, realistic expectations of an ability to make a difference, and a sense of humor are good coping strategies in these circumstances. The team member should not expect the affected country and the victims to change their ways of doing things to accommodate relief workers.

3. Critical-Incident Stress

No one who sees a major disaster remains emotionally untouched by it. Typical reactions are feelings of frustration, hopelessness, that simply too much suffering exists, and one person can have relatively little impact.

The combined effects of cultural stress and job stress make team members vulnerable to physical and emotional exhaustion. Some people refer to this condition as "burnout." It can happen to anyone.
The disaster-related stress caused by these factors is often referred to as critical-incident stress (CIS). A critical incident is any incident so unusually stressful to an individual as to cause an immediate or delayed emotional reaction that surpasses available coping mechanisms. Critical incidents take many forms, including all emergencies that cause personnel to experience unusually strong reactions. The effects of critical incidents can include profound behavioral changes that may occur immediately or may be delayed for months or years.

4. How Team Members May Be Affected by Stress During Disaster Operations

Following are some ways team members may be affected by stress during disaster operations.

- They may experience physical symptoms associated with stress, such as headache, upset stomach, diarrhea, poor concentration, and feelings of irritability and restlessness.
- They may become overwhelmed by the disaster and prefer not to talk about it, think about it, or even associate with coworkers during time off. They may become tired of continual interaction with victims and may want to isolate themselves during time off.

- They may have feelings of frustration or guilt because they miss their families and are unavailable to their families physically and emotionally due to fatigue, their involvement in the disaster, and so forth.
- They may feel frustrated with family and friends when they are able to contact them because the relief workers feel that families and friends simply cannot understand the disaster experience. If family and friends become irritated, it can compound the problem, and temporary isolation and estrangement may occur.

5. How To Minimize Stress During a Disaster Operation

Following are some ways to minimize stress during a disaster operation.

- As much as possible, make living accommodations personal and comfortable. Mementos from home may help disaster workers to keep in touch psychologically.
- Exercise regularly consistent with your present physical condition and the limitations of the disaster site and try to relax with some activity away from the disaster scene.
- Get enough sleep and try to eat regular meals, even if you are not hungry. Avoid foods high in sugar, fat, and sodium. Taking vitamin and mineral supplements may help your body to continue to get the nutrients it needs.
- Avoid excessive use of alcohol and coffee. Caffeine is a stimulant and should be used in moderation because it affects the nervous system, making relief workers nervous and edgy.
- Although you need time alone on long disaster operations, spend time with coworkers. Both experienced and new relief workers should spend rest time away from the disaster scene. Talking about normal things (home, friends, family, hobbies, etc.) other than the disaster is a healthy change of pace.
- Use humor to help ease the tension. Use it carefully, however, as victims or coworkers can take things personally, resulting in hurt feelings if they are the brunt of “disaster humor.”
- When on the job, take breaks during the day, especially if you find yourself making mistakes or are unable to concentrate.

Team members should try to stay in touch with family back home if they can. Communication helps prevent the sense of being strangers when they return after the disaster.

Team Leaders can take specific, practical action to prevent and reduce the effects of CIS, consequently avoiding the personal and organizational costs associated with treatment. Steps include:

- Learning to identify and respond to CIS in personnel.
- Educating team members in advance about the potential harmful effects of critical incidents. Experiencing stress during a disaster operation is normal, but remember that stress can be identified and managed.

Findings from the Hurricane Katrina Final SAT Report

Finding 01 – Traffic control systems are not operating throughout the hurricane affected areas and pose high risk to employees driving in these areas.

Finding 02 – Several IMT locations have environmental safety issues which include noise, mold, dust, and insect infestations.

Finding 03 – Regional IMTS are not readily equipped with critical supplies and equipment specific to initiating hurricane or other natural disaster response operations.

Finding 04 – Several IMTs expressed concerns relating to fatigue management and incident stress.

Finding 05 – Occupational health and safety and Public Health Services expertise would be beneficial for "All Risk" assignments of IMTs.

Finding 06 – Security at several camps may not be adequate to ensure protection from unauthorized personnel especially at the Jackson Square camp and others within the city of New Orleans.

Finding 07 – There is pervasive and persistent misunderstanding of the health risks posed by stagnant flood waters and dust from drying silt deposited throughout the flood zone in New Orleans.

Finding 08 – Centers for Disease Control and Prevention (CDC) has determined personnel involved in hurricane recovery efforts do not need to be immunized for hepatitis A or hepatitis B unless involved in direct patient care. CDC has issued advice for workers to be immunized for diphtheria/tetanus as a part of routine disease prevention.

Finding 09 – Aerial insect control spraying is occurring and has caused concern among incident personnel.

Finding 10 – The availability of incident safety information is haphazard, unstructured and difficult to obtain by field safety personnel.

Finding 11 – State and other nonfederal safety officers are not aware of all federal safety policies affecting personnel.

Finding 12 – Incident medical personnel cannot be utilized up to their certification levels due to a lack of EMS sponsorship technicalities.

Finding 13 – IMT configuration and limited numbers of positions for disaster response often impedes the IMT ability to function efficiently.

Finding 14 – There is no common form of communications between agencies responding to disasters and this often requires the IMT to supply a central system of communication for itself and cooperators.

Finding 15 – Who is in charge? Lack of FEMA leadership resulted in confusion and inefficient operations.

Finding 16 – There is no preplanned coordination between military and civilian aviation operations forcing IMT aviation personnel to mitigate safety issues.

Finding 17 – Several types of IMT organizations involved in the response effort and are often at odds, or in competition for resources.

Finding 18 – Safety Officers must develop mitigations to unfamiliar situations during "All Risk" incidents with out the benefit of prior information or experience.

The entire report including discussions and recommendations regarding the findings can be found on the Wildland Fire Lessoned Learned Center's Web site at:
http://www.myfirecommunity.net/documents/SAT_Report_Hurricane_Katrina.pdf

Hurricane Katrina Final SAT Report
Excerpts from Appendix 3

Hurricane Katrina Relief
Safety Considerations for Incoming Support Personnel

Prior to Departure from your Home Unit:

It is recommended you obtain a tetanus booster if not received within the past 10 years. Get as much information as possible concerning expected living conditions. If you are ordered to a coordination center you will likely have access to telephone service, restaurants and hotel lodging. If you are ordered to a logistical support center or other "field assignment" you may be living and working under primitive conditions.

Safety Considerations for Persons Ordered to Field Assignments:

Expect that you are going into a desperate situation. For the duration of your tour, plan on no electricity, no refrigeration and no telephone communications. In contrast to a "fire camp" you should assume that there will be no Supply Unit available. Therefore bring with you the following:

- ✓ fresh refill of any necessary prescriptions
- ✓ three MREs or other non-perishable meals
- ✓ a tent
- ✓ rain gear
- ✓ insect repellent
- ✓ light sleeping bag
- ✓ flashlight and extra batteries
- ✓ hard hat
- ✓ gloves
- ✓ first-aid kit with aspirin, Band-Aids, etc.
- ✓ sleeping pad if you have room.
- ✓ cash – (credit cards require phone lines)
- ✓ portable water purifier, if available

If you are driving, bring a few cases of water with you. If flying in, purchase extra water when you have the opportunity.

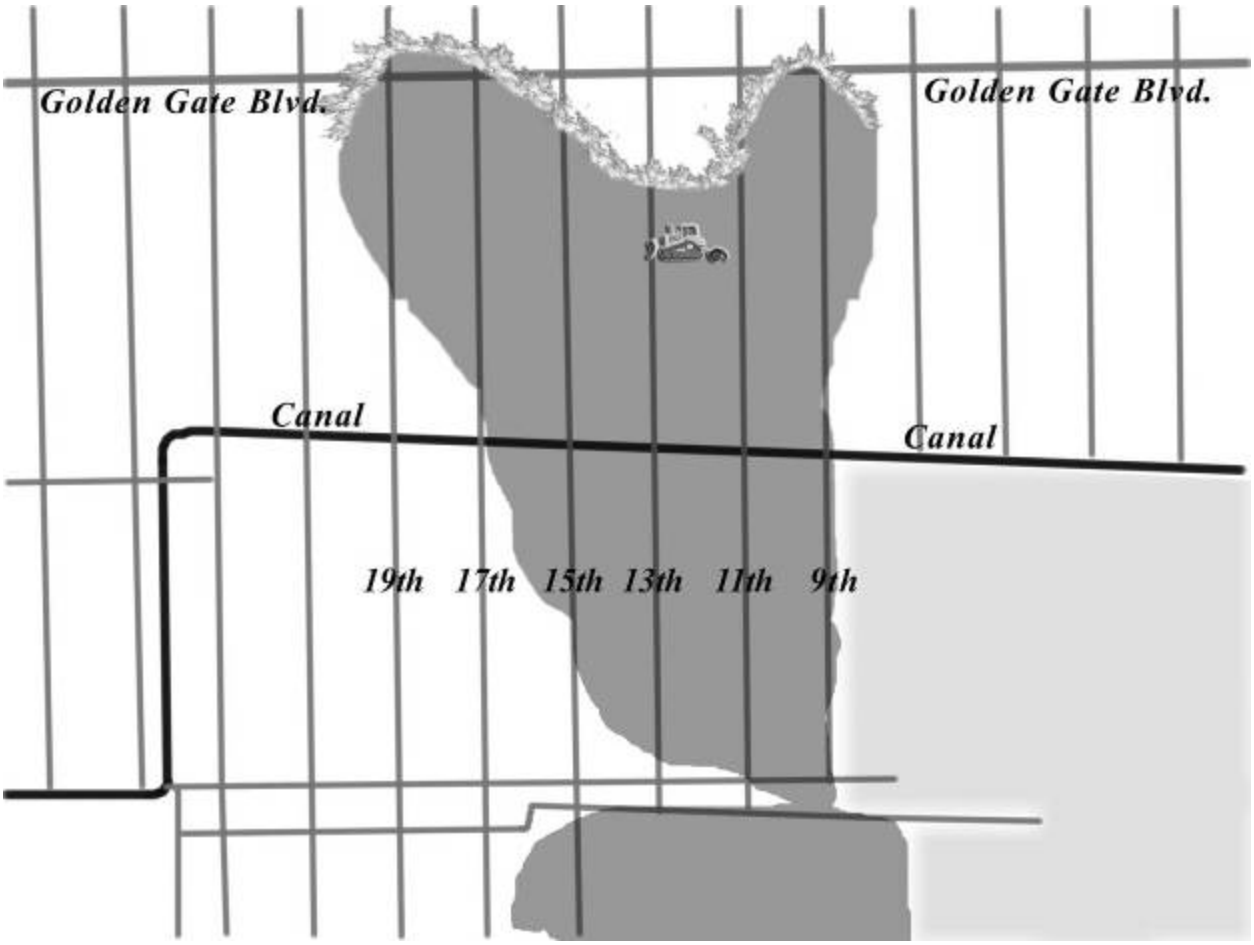
Hazards, Threats, and Mitigation Measures:

The following is a listing of the most common threats to your safety, and recommended mitigations.

Downed Power Lines	If you're not sure, treat all power lines as if they are live.
Contaminated Drinking Water	Assume all water is contaminated unless you saw the bottle it came from. Municipal water supplies in severely storm damaged areas are also likely contaminated.
Lightning	Take shelter in building or vehicle. Don't operate land-line phones, machinery, or electric motors. Get away from standing water. Do not use an umbrella Observe the "30~30" rule
Snags, broken tree tops and weakened trees.	Weakened trees, bent trees, and broken trees are everywhere. Secure your working area using certified fallers. Be wary of broken tops and limbs that haven't yet fallen.
Hydration and Heat Stress	Stay hydrated! You may need to drink up to a gallon of water per day to avoid dehydration in this tropical environment, even if you're not performing any physical work! Two to three gallons, supplemented with Gatorade or other electrolyte replacement drink, is necessary if performing arduous work. Monitor yourself and others for symptoms of heat stress. Cool down in an air-conditioned building or automobile if necessary. People not acclimated to high humidity are especially vulnerable to the southern heat.
Snakes/Insects/Animals	Avoid snakes, insects and stray animals. There are 6 varieties of poisonous snakes in the area. Cottonmouths will be exploring new pools and rattlesnakes will be searching for dry ground. Poisonous spiders and yellow jackets will be looking for dry areas to establish a new residence. Be sure to use insect repellant on all exposed skin, socks, and pant legs.

Travel hazards including driving/collision with other vehicles, inoperable traffic lights, blown down street signs including stop signs, downed trees, loose livestock, high water, washed out roads, mud, gasoline shortages, and lack of communications.	In storm impacted areas do not depend on cell or land-line coverage. If you get lost, stuck in mud or high water, or trapped by fallen power lines or trees, it may be a very long time before you are found. Expect gasoline shortages or pumps not working in storm impacted areas. Daily travel should be conducted under the following constraints. ➢ When traveling alone, establish a travel route and make it known (map and description) to a responsible person that will initiate a search along that route if you don't show up within a pre-determined time. ➢ Keep gasoline tanks at least ½ full. ➢ Carry rain gear and enough personal supplies (water, food, prescriptions, etc.) to be entirely self sufficient for 48 hours in the event you get stuck or lost, and have no communications. ➢ Listen to LOCAL radio stations while driving for information pertaining to weather, road closures, flood alerts, evacuation orders, tornado alerts, and gasoline shortages. ➢ Avoid travel on rural roads at night. ➢ Be wary of confused and stressed deer on roads. ➢ Be wary of livestock on roads due to downed fences. ➢ Be wary of traffic lights not operating and stop signs blown away. Treat uncontrolled intersections as 4-way stops. ➢ Heavy fog, especially along coastal areas, is common. The locals know where all the curves in the road are and may be driving much faster than is safe under foggy conditions.
Desperate Survivors	Avoid stopping except in secure locations. If forced to stop, remain calm and be compliant with requests. Do not put yourself in danger by trying to defend your belongings or vehicle. Get out of the situation as quickly as possible.

MODULE 6—Fighting Fire in the Southeast
Golden Gate Fire



Group Exercise:

After reviewing *Common Threads*, discuss the following question in your group:

- Which of the similarities listed in the article could also be found on the Golden Gate fire?

"Common Threads"

Jim Payne, Wildwood Consulting, LLC

Why have more than 20 wildland firefighters lost their lives to fireline burnovers since 1994? "Common Threads" is a fresh look at some of the key similarities of three fatality fires: South Canyon (1994), Thirtymile (2001), and Cramer (2003). There are many commonalities with other recent fireline entrapments. The following similarities are based upon a review of the official fire investigation reports and other public documents.

Similarities

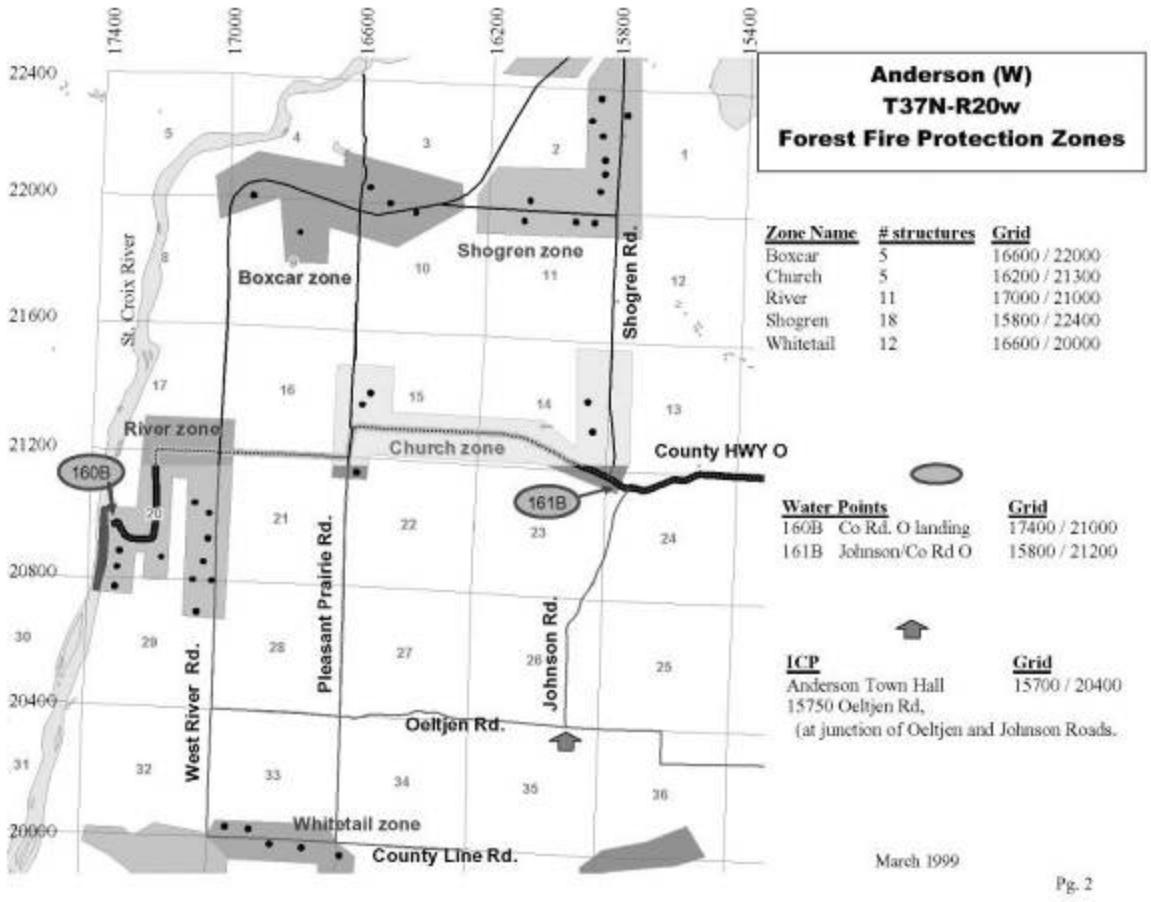
- *Entrapments and/or burnover fatalities* had previously occurred on each host Unit.
- Each Unit was a *"consolidated Unit"* and/or had *poor working relationships* with the adjoining Unit.
- Severe to *extreme drought* conditions and a *high Haines Index* were present.
- A *multiple fire situation existed*, both in the Geographic Area and on the Unit.
- The fire behavior was *active day and night*.
- *Rapid fire growth was unexpected* by leadership.
- Firefighters were *working up hill and/or up canyon* from the fires.
- Each fire was *Type 3* complexity with *multiple days of initial attack and extended attack* operations.
- The *strategy* was to fully *control* the fire at the smallest possible size.
- *Tactics* on the fires were *direct attack with hand crews* (two of the three fires involved the aerial delivery of firefighters above the fire).
- The *situational awareness* of the firefighters and their personal actions did not reflect the *eminent danger* they faced.
- Personal Protective Equipment *(PPE) was improperly used* (esp. fire shelters, gloves, fire clothes).
- The *ICT3* was involved in *significant managerial and/or personal issues* unrelated to the fire suppression action on the fatality fire (on two of the three fires).
- There were numerous *leadership failures*, as evidenced by:

    - Inadequate *briefings* of assigned personnel
    - *Strategy* and/or *tactics* were not adjusted when unsuccessful
    - *Spot weather* forecasts not requested
    - Lack of *fire behavior predictions*
    - Construction of *unanchored fireline*
    - Confusion on *who is in charge*
    - Poor management of *fatigue*
    - *Risks* un-assessed and/or poorly managed
    - Non-compliance with *10 Standard Firefighting Orders*
    - Non-mitigation of applicable *Watch Out Situations*
    - Need to deploy *shelters* was unexpected
    - Fire Program Managers with a large *span of control* re: oversight
    - Poor *oversight* of the ICT3's strategy and tactics by the FPM and/or AA
    - FPM and/or AA didn't ask for *help* (deputies, etc.) in a high workload situation
    - Lack of *preparedness* actions in response to fire season severity and multiple fire situations

For more information, please contact:

Jim Payne, Wildwood Consulting, LLC
7411 E. Grey Lag Drive
Nampa, ID 83687
208-463-0631 or 208-899-2373 (cell)
jdpayne@cableone.net

Module 7—Wildland-Urban Interface



The above map is an example of a Forest Fire Protection Zone map created by the Department of Natural Resources in Wisconsin. These maps are used by all fire protection agencies within the area to identify predetermined ICPs, water points, number of structures, etc.

Wisconsin DNR Contact:

James Barnier
Forestry Fire Suppression Specialist
Wisconsin - DNR
(608) 253-6714
E-mail: James.Barnier@dnr.state.wi.us

Module 7—Wildland-Urban Interface

Items to Cover in the Pre-Season Pre-Planning Meeting
(Non-inclusive list)

Operating Procedures:

- Protection Organization – coordination centers and summary of agencies protection limitations and capabilities
- Fire Notification and Action – prompt notification of taking suppression action
- Dispatch Operating Plan – each agency develops their own
- Aircraft Policies – use and availability
- WFSA – must be completed immediately if declared escape fire
- Command and Organization – IC determination and use
- Communications – list of frequencies, contacts
- Media and Public Relations – each agency separate or unified press releases
- Security and Access – incorporating of local law enforcement
- Emergency Medical Services – EMT, ambulance
- Qualifications/Minimum Recommendation
- Protective Equipment and Physical Fitness
- Cooperation of Resources – training, prevention efforts, fire investigation
- Mutual Aid Agreements – with or without reimbursement
- EERA – Equipment Rental Agreement process

Billing Amounts and Procedures:

- Reciprocal fire protection zones
- Severity requests
- Fire preparedness
- Emergency fire suppression
- Administrative surcharges

Special Management Considerations:

- Repair of Suppression Damage – responsibility of each agency
- Waivers – claims for loss, damage, injury against other agency

Group Exercise:

- How would you rate your local area(s) preplanning efforts?
- How many of your local cooperators do you know or have you made contact with?
- Discuss other suggestions for improving cooperation before the upcoming fire season.

MODULE 8—Safety Zones

Safety Zone Types

- Black
- Natural
- Man-made

Safety Zone Guidelines

- Avoid locations that are downwind from the fire.
- Avoid locations that are in chimneys, saddles, or narrow canyons.
- Avoid locations that require a steep uphill escape route.
- Take advantage of heat barriers such as lee side of ridges, large rocks, or solid structures.
- Burn out safety zones prior to flame front approach.
- For radiant heat only, the distance separation between the firefighter and the flames must be at least four times the maximum flame height. This distance must be maintained on all sides, if the fire has ability to burn completely around the safety zone. Convective heat from wind and/or terrain influences will increase this distance requirement.

CALCULATIONS ASSUME NO SLOPE AND NO WIND

Flame Height	Distance Separation (firefighters to flame)	Area in Acres
10 ft.	40 ft.	1/10 acre
20 ft.	80 ft.	1/2 acre
50 ft.	200 ft.	3 acres
75 ft.	300 ft.	7 acres
100 ft.	400 ft.	12 acres
200 ft.	800 ft.	50 acres

Distance Separation is the radius from the center of the safety zone to the nearest fuels. When fuels are present that will allow the fire to burn on all sides of the safety zone this distance must be doubled in order maintain effective separation in front, to the sides, and behind the firefighters.

Area in Acres is calculated to allow for distance separation on all sides for a three person engine crew. One acre is approximately the size of a football field or exactly 208 feet x 208 feet.

Trigger Point

A predetermined event or time that initiates a preplanned response.

Risk Management Process

Step 1 Situational Awareness

Gather Information

- ☐ Objective(s)
- ☐ Communication
- ☐ Who's in Charge
- ☐ Previous Fire Behavior
- ☐ Weather Forecast
- ☐ Local Factors

Scout the Fire

Step 2 Hazard Assessment

Estimate Potential Fire Behavior Hazards

- ☐ Look Up/Down/Around Indicators

Identify Tactical Hazards

- ☐ Watch Outs

What other safety hazards exist?

Consider severity vs. probability?

Step 3 Hazard Control

Firefighting Orders ➔ LCES Checklist – MANDATORY

- ☐ Anchor Point
- ☐ Downhill Checklist (if applicable)

What other controls are necessary?

Step 4 Decision Point

Are controls in place for identified hazards?

NO – Reassess situation YES – Next question

Are selected tactics based on expected fire behavior?

NO – Reassess situation YES – Next question

Have instructions been given and understood?

NO – Reassess situation YES – Next question

Step 5 Evaluate

Human Factors:	Low experience level?
	Distracted from primary tasks?
	Fatigue or stress reaction?
	Hazardous attitude?
The Situation:	What is changing?
	Are strategy and tactics working?

MODULE 8—Safety Zones
Exercise 1

Current Situation:

Date/Time: August 10; 1100 hours

Fire Size: 2 acres

Location: near Helena, Montana

Present Weather: Temperature, 89ºF; RH, 28%; winds, NE at 8-10 mph

Fuels: Grass and sage transitioning to mixed conifer

Weather Forecast: Temperature, upper 90s; RH, high teens; possibility of afternoon thunderstorms with gusty winds

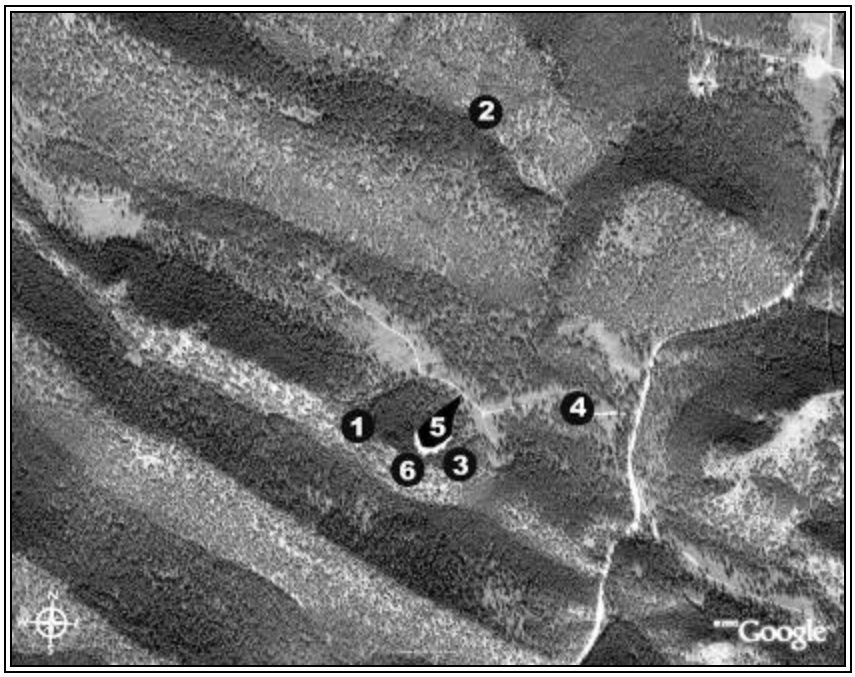
Resources on Scene: Four-person IA squad

Exercise:
While watching the video, use the scale below to rate each safety zone:

A — Most Effective
B
C — Effective
D
F — Least Effective

#1 _____
drainage

#5 _____
black



1 mile

#2 _____
ladder fuels

#4 _____
truck on road

#6 _____
rock outcropping

#3 _____
clearing

MODULE 8—Safety Zones
Exercise 2 – Safety Zone #3

Current Situation:

Date/Time: August 10; 1100 hours

Fire Size: 2 acres

Location: near Helena, Montana

Present Weather: Temperature, 89ºF; RH, 28%; winds, NE at 8-10 mph

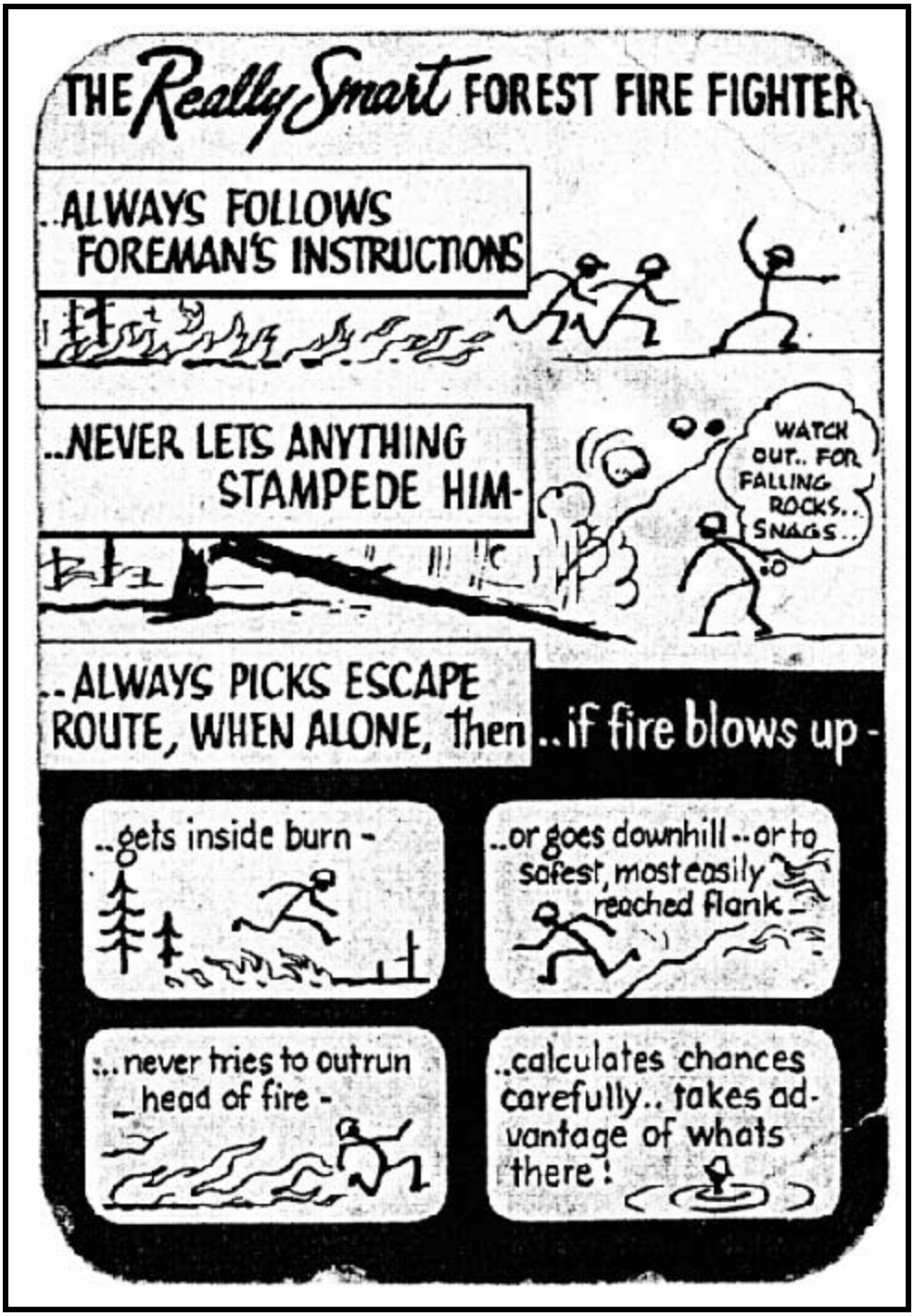
Fuels: Grass and sage transitioning to mixed conifer

Weather Forecast: Temperature, upper 90s; RH, high teens; possibility of afternoon thunderstorms with gusty winds

Resources on Scene: Four-person IA squad

Group Exercise:

- Given three (3) minutes, develop your plan for using Safety Zone #3 (clearing). Be sure to consider current and forecasted fire behavior and determine trigger points for disengagement. Utilize the Safety Zone Guidelines from the IRPG.
- What is your contingency plan if your escape route is cut off?
- Present your plan to other groups.



(Forest Service issue from the early 1950s)

MODULE 9—Innovations

Group Exercise: (Optional)

Read and discuss the following excerpts from:

- Brad Mayhew's "A Human Factors Tool for Wildland Firefighters" (2&7 Tool).
- Ted Putman's "Deep Psychology a Quiet Way to Wisdom."

A HUMAN FACTORS TOOL FOR WILDLAND FIRE

Two Errors:

1. Underestimating hazard and using inadequate safety measures (i.e., inadequate LCES)
2. Failing to notice changing conditions and adjust tactics accordingly

Seven Barriers:

1. Inexperience
2. Getting to comfortable (false sense of security, autopilot)
3. Distraction from primary duty
4. Priorities out of place
5. Social influences
6. Stress reaction
7. Physical impairment (e.g., fatigue, carbon monoxide, heat stress, medication, etc.)

Brad Mayhew, October 2005
www.firelinefactors.com

A HUMAN FACTORS TOOL FOR WILDLAND FIREFIGHTERS

At the heart of preventable wildfire tragedies are two key errors—two ways that situational awareness and decision-making break down. Contributing to these errors are seven key barriers to situational awareness and decision-making. The following is a training tool to give firefighters the skills to notice, identify, and mitigate breakdowns in decision-making and situational awareness. This tool is still a work in progress.

THE TWO ERRORS

1 – Underestimating hazards, and using inadequate safety measures

2 – Failing to notice changing conditions and adjust tactics accordingly

Each of these errors arises from human nature: 1 – Optimism: We assume that nothing bad will happen, and 2 – Inertia: Once we interpret our situation and choose a course of action, we tend to stick with it. Usually, optimism and inertia are appropriate, even beneficial, but sometimes they get in the way of sound decision-making.

How do we make decisions? "Recognition-Primed Decision Making," is one current model: where we look at a situation, our minds search for a similar situation from the past, and we react to the current situation based on our past experience—we go through "slides" in our head, pick out the one that most closely matches current conditions, and act on that. Tragedies occur when 1-You pick the wrong slide, or 2-Conditions change, but your slide stays the same. But why does this happen? Nearly every fatality came with numerous clear early warnings. Some barrier blocked our ability to notice them.

THE SEVEN BARRIERS

There are seven key barriers to situational awareness and decision-making:

1 – Inexperience

- Don't have the "slides." Don't know where to focus attention.
- Don't recognize the severity of warning signs (haven't developed "gut reactions")

2 – Getting Too Comfortable

- Think nothing bad will happen. "It's always worked out fine in the past."
- Get used to an activity - brain goes on **autopilot** and you become **less attentive.**
- Key terms: false sense of security, complacency, normalization of risk, mindlessness

3 – Distraction From Primary Duty

- You can focus fully on only ONE thing at a time - you can only juggle about FIVE things in your brain. When you try to track more, vigilance suffers.
- Distractions can be external (e.g., heavy radio traffic, panicking public, etc.) or internal (e.g., conflicts, personal concerns, etc.)

4 – Priorities Out Of Order

- We have all kinds of priorities, desires and motivations. Safety is one of them. Other motivations include: accomplishing the mission, ego, saving acres, structures or dollars, staying comfortable, not letting people down, thrill seeking.
- Unconsciously, our motivations move up and down on our mental priority list throughout the day. It is easy for other priorities to get ahead of safety when the pressure is on.
- Saving structures and not letting others down, for example, are good priorities, but they can be counterproductive when they get ahead of safety.
- Motivations and desires affect what we focus on—we see what we want, and we block out what we don't. This can lead to wishful thinking and avoidance.

5 – Social Influences

- Our brains pick up on clues and hints about what other people are thinking. So we "pick our slides" based on what others seem to be thinking. And we do most of this without realizing it. Usually this works well - if what other people seem to be thinking *is really* correct. But not always.
- One form of social influence is peer pressure - powerful even when it's unspoken.
- **Groupthink** - The group mind locks onto a slide. In groupthink situations:
    - Group members stop thinking for themselves
    - Group cohesion takes priority over other objectives
    - Group members don't notice warnings that contradict the group's slide.
    - Members explain away warnings they do notice.
    - Groups have an illusion of invulnerability, and take irrational risks.
- This isn't to say that all group decision-making is dangerous. Groupthink is just a way that group decision-making can go wrong.

6 – Stress Reaction

- Stress triggers our fight-or-flight survival mechanism. This is a physical, chemical change in the body and brain. Heart rate and breathing speed up as you get ready to respond immediately to threats and challenges.
- As the stress reaction builds, the rational "thinking" part of the brain shuts down, and the emotional "reacting" part takes over. When this happens:
    - Your mind locks into a course of action and you fixate on a goal.
    - You lock into trained behaviors and block out new information.
    - Communication breaks down.
- This extreme stress reaction is powerful if you have to react quickly and fight hard or run fast. But it's not helpful for thinking clearly or seeing the big picture. And it can cause you to do things that "don't make sense."
- Key terms: getting too focused, tunnel vision, action tunneling, mission fixation

7 – Physical Impairment

- Physical factors like fatigue, Carbon Monoxide, heat stress, alcohol or drugs bog down and interfere with your ability to perceive, think, and respond.

FINAL THOUGHTS

Human factors are more subjective than tactics and fire behavior. If we try to incorporate this tool into our case study process at the crew level, one constant annoyance will be that you can't really get absolute final answers. For example, if you're looking at stress, you'll probably never know *exactly* how stress affected decisions on a mishap; there'll always be some ambiguity. Nevertheless, it's still worthwhile to run through the process because the intent is to bring out the lessons of human factors.

This is a teaching tool. It's a system for looking at mishaps and finding the fundamental reasons things go wrong.

Finally, this 2&7 Human Factors tool is a work in progress. I'm aiming for completeness, simplicity, precision, and usability. This is an ongoing project—a model to build on, and I welcome any feedback.

Further information and some short usable papers explaining this tool can be obtained from my website: **firelinefactors.com**

DEEP PSYCHOLOGY: THE QUIET WAY TO WISDOM
(Excerpts)

Ted Putnam, Mindful Solutions, Missoula, MT

This presentation reviews the deep ancient principles of mind to promote awareness of the mind as it actually exists and what it has the potential to become. Such personal awareness is best accomplished through a practice of both formal and informal mindfulness meditation. To appreciate why meditation is the single most powerful way to improve your mind and thus reduce accidents and fatalities involves looking at your everyday mind and the nature of accidents.

When looking at wildland fire fatalities, accidents, near misses and unsafe actions, individuals and organizations tend to focus on physical causes and ignore mental causes. This is surprising since the rule of thumb of military and industry safety experts is that 20 percent of the causal factors are physical, while 80 percent of the causal factors are due to mental errors.

Firefighters do not go to their deaths thinking in the morning that this is a good day to die, so let's violate the Fire Orders and other safety concerns. But this conclusion pretty much reflects the thinking of most wildland fire accident investigators. With wise attention the real question is what were they paying attention to and basing their actions upon while embedded in a dynamic stressful situation? When people respond they do so based largely on habitual patterns of behaving and thinking. If we accept that 80 percent of accidents are due to mental errors then, to correctly understand the implications, we need to add that 80 to 90 percent of our mental effort is unconscious in the sense we are not aware why we do what we do.

We are on autopilot most of the time. Most of our actions make more sense from an autopilot perspective. After an accident we imagine we would have been aware of the warnings because we have seen the outcomes and go back in time in a more fully awake state looking for warnings. Perhaps the best way to more fully understand this issue is to read Daniel Goleman's book *Vital Lies, Simple Truths: The Psychology of Self-Deception* which outlines much of the underlying Group Think, analogously, Self Think and underlying Blind Spots.

A mentally based warning list of what firefighters need to pay attention to may help. But it would still fail in the same manner that the Fire Orders and all lists fail. When you first observe the lists and pay attention they energize awareness in much the same way as reviews of recent accidents. But in time most list items start to be ignored largely in that they are Watch Outs rather than Don't Do's. Once the process of habitually ignoring the list items begins, your mind will automatically short circuit the awareness process and then you will not even be aware of what your mind earlier noted. A second automatic response is when you notice the warning and the underlying threatening feeling then shift attention elsewhere, externally this time, to something less threatening. Thus the warning goes unheeded. Both processes are covered in Goleman's book.

A few mental rules on how your mind works routinely would help. One mind rule is that awareness and thinking are normally on autopilot. Another mind rule is that you can only attend

to one object at a time. Still another mind rule is that you have limited mental capacity. So, for example, when you attend to any stressor, that stressor will interfere with clearer awareness and thinking. Your mind will habitually operate on the fireline in whatever manner it operates routinely away from the fireline but generally worse due to more stress. It follows that if you're waiting to take greater mental notice once you get to the fireline you're a bit late. In summary, if you understand the above and how your mind works then you have to be working on better awareness and thinking 24-7-LIFE. There is no other way. Yes, unfortunately, you can't buy it outright or pay someone else to do it for you. You have to commit to good old fashion hard work to gain the benefits.

Fortunately training and practices are available to get you off autopilot so you can become more aware, see subtle interactions, analyze correctly and think clearer. You do this by practicing meditation. The first lesson in meditation is often to keep your mind focused on feeling your own breath. Actually, any object will do. What you, me and everyone who has every tried to do this notices in a few minutes is that you can't keep your mind focused on even a simple object let alone the complexity we are all embedded in. If you have insight in what you have just observed in meditation the real shocker is, if you're not controlling your own mind, who or what is. This is in no way a trivial observation but lies at the core of what you are attempting to accomplish.

You have now come face to face, or more appropriately, mind to mind with your own mental autopilot. "You" struggle in the meditation to focus on the selected object and your "Autopilot" struggles to take your focus where it normally goes. If you keep a record, Autopilot wins most of the time. But with more and more practice you become more skillful and start to gain back some control and thus an element of real mental freedom. As a result you gain all the above mentioned benefits which you will become aware of in the meditation process. Meditation means mind control but it also means mind protection. Once you begin taking control you acquire protection from your mind going off on side trips when you need it the most, like under risky fire conditions. You begin having fresh observations on a daily basis which carries over to the fireline by keeping you more aware. With less autopilot interference you have more of your total mental capacity available, more energy and feel fresh and more alive.

The above seems clear to me but I have a lot of psychology and meditation training so I'm not sure it is clear to you. The real issues above only become clear once you take a prolonged look at your own mind and realize the implications. The mindfulness meditation then becomes the work or practice you do to get your mind back. And it is your observation of mental improvement that keeps you practicing 24-7-Life. To quit is to fade back to autopilot.

Recent meditation research by Western neuroscientist and psychologist is changing the way we think about the mind, bran and human potential. The new research shows that people who meditate regularly, in time become much more aware, less stressed, more positive, and healthier than non-meditators.

My conceptual presentation fills your mind with more knowledge and arouses your interest but only actual meditation practice results in truthfully knowing your own mind.

The article can be found in its entirety at:
http://www.iawfonline.org/summit/2005%20Presentations/2005_pdf/Putnam.pdf

MODULE 10—Radio Communication

Radio Narrowband Briefing Paper

Background:

Over the past few years firefighters have increasingly found the quality of their radio communication to be lacking. There are probably many reasons for this, but one in particular has been the federal agencies migration to narrowband.

Radio problems associated with narrowbanding aren't particularly complicated, but unless you understand them, there will always be a risk for marginal radio communication.

To try and get firefighters back out in front of these issues, the federal agencies at NIFC have taken on the following tasks:

- Develop a training outline to improve community knowledge of narrowband.
- Develop process for dissemination of information & providing a feedback mechanism
- Develop a two-tiered training program that targets communication technicians and users
- Develop and distribute a convention for the creation of frequency plans, ICS-205s, ICS-220s, and aviation resource orders that designate the narrow/wideband status of a frequency

What's happening this year

The effort to meet the objective has been focused on "increasing firefighter awareness" through the following three venues:

1. Creating a Wildland fire radio communication website that functions as an end user resource for technical assistance, problem reporting, information sharing and training (http://radios.nifc.gov).
2. Working with the Federal Fire and Aviation Safety Team to make radios and narrowbanding a "hot topic" for the 2006 refresher training effort.
3. Developing a training package that will be taken to the field and offered to all firefighters prior to the beginning of the 2006 fireseason. The training will be organized through the Geographic Area Coordination Groups, and be approximately one hour long. The objectives of the training are to introduce firefighters to narrowbanding, and to describe the symptoms of radio communication problems that firefighters can expect to encounter when working in a mixed bandwidth environment. The training will also instruct firefighters how to program their radios into and out of narrowband mode, and how to recognize which mode it is in.

History has taught us just how important solid communication is, and why every firefighter needs to know how their radio works. Advances in technology are altering fireline communications. One result of these changes is that radios have become complex tools that take time to understand. Please take time this spring, and learn how to keep this amazing tool working as an asset instead of a liability.

How to Tell if Your Radio is Narrowband

King DPHx Portable

- ✓ Must have the radio in programming mode
- ✓ When you put in the channel to be edited, you will see the channel number and a capital "N". This will tell you that channel is narrowbanded.
- ✓ If the "N" is not present, press the # sign on the keypad and it should appear.
- ✓ To toggle between narrow and wideband, simply press the # key on the keypad.
- ✓ Remember that each channel is programmable, so just because one channel is narrowband does not mean they are all programmed in the narrowband mode.

King EPH Portable

- ✓ When checking the King EPH, it is very important to check to see if you get the word PASS when you put the password in for programming.
- ✓ If you get the word PASS, then you should see the "N" next to the channel number and can change it from narrowband to wideband by pressing the # key on the keypad.
- ✓ If you do not see the word PASS, then you will have to program the radio by using a computer or cloning and will not be able to tell whether it is narrowband or wideband unless you upload the radio program to a computer and look at it there.

Thales RACAL Portable and Datron Guardian Portable

- ✓ When you turn the radio on, you will see on the bottom of the display either "An" (analog narrowband) or "Aw" (analog wideband).
- ✓ To change the channel you must go to the channel programming.
- ✓ Toggle down to B/W. Hit enter. Using the up and down arrow, you can change between 12.5khz (narrowband) and 25khz (wideband). Hit enter to save setting.
- ✓ Remember that each channel is programmable, so just because one channel is narrowband does not mean they are all programmed in the narrowband mode.

EF Johnson 5100 Portable

- ✓ Press F2 and go to keypad prg.
- ✓ Toggle to Chan Parms, press F2
- ✓ Toggle to Chan Space, press F2
- ✓ You will see Narrow or Wide, toggle between the two and set to appropriate setting. Press F2 to set.
- ✓ Remember that each channel is programmable, so just because one channel is narrowband does not mean they are all programmed in the narrowband mode.

Please refer to http://radios.nifc.gov for more specific details on programming any of the radios listed above.

Module 11—Conclusion and Fire Shelter Deployment Practice

Fire Shelter Information

New Generation Fire Shelter

The new generation fire shelter (available June 2003) offers improved protection from radiant, thermal, and convective heat. All Federal, State, and local wildland firefighters carry the fire shelter.

As always, the fire shelter should be used only as a last resort. No product will guarantee a firefighter's survival in an entrapment situation. Firefighters should adhere to the **10 Standard Firefighting Orders** and **LCES (Lookouts, Communication, Escape Routes, and Safety Zones)**.

Wildland firefighters will need to attend a training session to learn how to use the new shelter before they are allowed to carry the new shelter on the fireline.

For more information on "Current Training Standards" for the new shelter...

2005 Updates:

Large New Generation Fire Shelter Now Available - **Tech Tip - June 2005**

Fire Shelter Use Instructions:
(PDF File in English)
(PDF File in Spanish)

FEDERAL FIREFIGHTING AGENCIES AND GSA RECALL NEW GENERATION FIRE SHELTERS

The Federal firefighting agencies and the General Services Administration (GSA) are recalling 68,000 previously manufactured new generation fire shelters for a retrofit to strengthen a corner of the product.

See the News Release **(MS Word) (PDF File)** for information on the recall and the "**Safety Warning Alert**" posted by NWCG.

http://www.fs.fed.us/fire/safety/shelter/shelter_index.html

(Page intentionally left blank)

9251-2835-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!

(Page intentionally left blank)

Fire
Tech Tips

United States Department of Agriculture
Forest Service
Technology & Development Program
June 2005
5100 0551-2325-MTDC

Large New Generation Fire Shelter Now Available

Tony Petrilli, Project Leader

Highlights...

- A large version of the New Generation fire shelter is available.
- The large version is recommended for firefighters who are taller than 6 feet 1 inch or whose girth is larger than 53 inches at any point.
- The large version weighs just 0.6 pounds more than the regular fire shelter and can be carried in the same hard-plastic liner and case.
- Firefighters who are shorter than 5 feet 7 inches may have difficulty deploying and holding down the large fire shelter.

A large version of the New Generation fire shelter is available for big firefighters. The New Generation fire shelter has been available to firefighters since 2003, but it was designed in just one size based on data from the military and on early trials of the shelter. Feedback from the field prompted development of a large shelter to provide better protection for larger individuals by:

- Reducing body contact with the hot shelter material during deployment
- Providing more insulating air space between the shelter material and the occupant
- Preventing the shelter from being damaged when a larger person stretches out inside the shelter and pushes hard against the shelter material

How Does the Large Shelter Differ from the Regular Shelter?

The large shelter is longer, wider, and taller than the regular shelter (figure 1) and weighs about 0.6 pounds more. Table 1 shows the dimensions of both shelters. The large shelter fits easily into the hard plastic liner and case used for the regular shelter. The large shelter is easily identified by

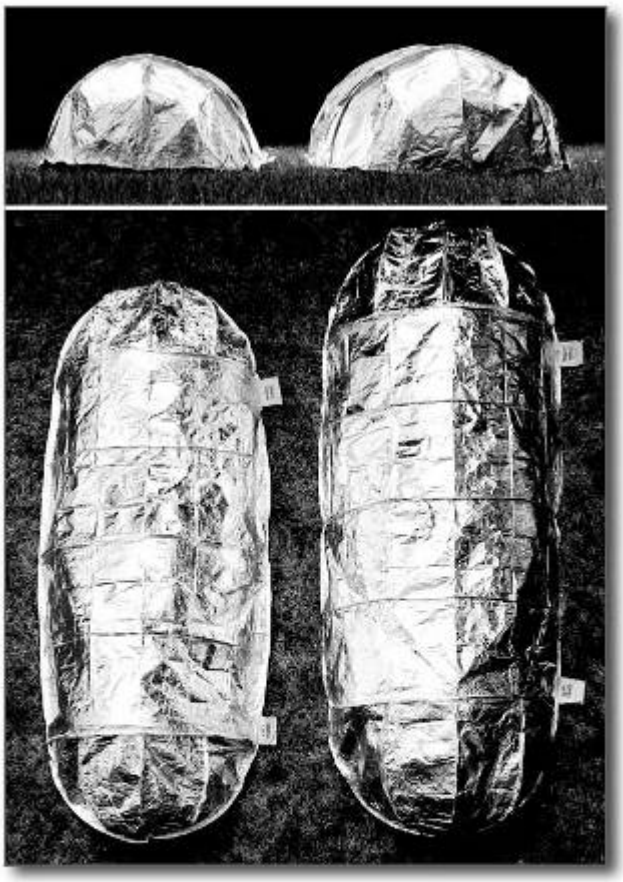


Figure 1—The large shelter (right) is longer, wider, and taller than the regular shelter.

For additional information, contact: *Tony Petrilli, project leader; USDA Forest Service, MTDC; 5785 Hwy. 10 West; Missoula, MT 59808-9361. Phone: 406-329-3966; fax: 406-329-3719; e-mail: apetrilli@fs.fed.us*

Table 1—Dimensions of the large and regular New Generation fire shelters. The large shelter weighs 5.2 pounds, compared to 4.6 pounds for the regular shelter.

	Large fire shelter (inches)	Regular fire shelter (inches)
Length	96	86
Height	19.5	15.5
Width	33	31
Packed size	9 x 5.5 x 4	8.5 x 5.5 x 4

the word "LARGE" stenciled on the quick deployment strap that is stitched onto the plastic bag holding the shelter. The large shelter's deployment strap is orange, rather than yellow (figure 2), the color of the strap on the regular shelter. This strap is visible whether the shelter is inside or outside its case.

Figure 2—The large shelter fits in the same carrying case as the regular New Generation fire shelter. The word "LARGE" is stenciled on the orange quick deployment strap of the large shelter.

Which Size Should I Carry?

The large fire shelter was designed for firefighters whose height or girth prevents them from fitting easily inside the regular shelter (figure 3). Any firefighter taller than 6 feet 1 inch should carry the large shelter. Any firefighter whose girth is larger than 53 inches at any point also should carry the large shelter. Girth around the shoulder area should be measured with your arms at your side.

Figure 3—This firefighter, who is 6 feet 2 inches tall and weighs 235 pounds, will find the large fire shelter roomier than the regular shelter. The photo has been digitally altered to show the firefighter as though the shelter was transparent.

Anyone who carries the large fire shelter should experiment with a large practice fire shelter to become familiar with the shelter's fit. If your height or girth would not require you to use a large shelter, you may request one if you try a regular shelter and feel it is too small for you. You should be able to:

- Lie face down inside the shelter while wearing a hardhat and boots without pushing against the ends of the shelter.
- Lie in the shelter with your arms through the hold-down straps.
- Fold your elbows next to your chest and protect the sides of your face with your hands with only minimal contact with the sides of the shelter.

Can I Be Too Small for the Large Fire Shelter?

In trials using fans to simulate wind, firefighters shorter than 5 feet 7 inches had difficulty deploying and holding down the large fire shelter. Firefighters shorter than 5 feet 7 inches should carry the regular shelter. Firefighters who are shorter than 5 feet 7 inches, but whose girth is larger than 53 inches should practice with the large practice shelter in a strong wind before deciding whether to carry a large shelter on the fireline.

In an emergency, a small firefighter could use a large shelter if a regular shelter was not available. Small firefighters should:

- Hold the large fire shelter down by placing their feet far into one end of the shelter to prevent the foot end from catching in the wind and exposing their body to hot gases.

- Place their arms through the holddown straps up to the elbows.
- Gather the floor material with their hands to help control the shelter and provide as good a seal as possible with the ground.

Training

All fire shelter training applies to the new large fire shelter just as it does the regular shelter. Deployment procedures have not changed. However, deployment training is required with the large practice shelter before a firefighter should carry a large fire shelter to the fireline.

The minimum training before either fire shelter is carried on the fireline includes:

1) Reading the training pamphlet, *The New Generation Fire Shelter*

2) Viewing the training video or DVD, *The New Generation Fire Shelter*

3) Practicing deployments using a practice fire shelter of the appropriate size.

The video and pamphlet include information on how the shelter works, how it is deployed, how to select a deployment site, what a firefighter might experience during an entrapment, how to train to use the shelter, and how to care for and inspect the shelter. A large practice fire shelter will be available during the summer of 2005. The new large practice shelter is orange. The regular-size practice shelter is green. Both practice shelters fit into the same case. The reusable practice shelter bag has been resized so it can accommodate both sizes of fire shelters.

Ordering Information

Training Materials

The New Generation Fire Shelter, pamphlet, (NFES #2710)

The New Generation Fire Shelter, video and DVD, (VHS—NFES #2711, DVD—NFES #2712)

Spanish-language versions also are available:

El Refugio de Proteccion Nueva Generacion, pamphlet, (NFES #2736)

El Refugio de Proteccion Nueva Generacion, video (NFES #2735)

Training materials can be ordered through the Great Basin Cache located at the National Interagency Fire Center (NIFC). All fire shelter training materials are within PMS 411. For more ordering information, go to the National Wildfire Coordinating Group publications Web site: *http://www.nwcg.gov/pms/pubs/pubs.htm*

Fire shelters and practice fire shelters can be purchased through the General Services Administration's *Wildland Fire Equipment Catalog* or through private distributors.

Transition to the New Generation fire shelter is to be complete for Federal agency firefighters by the end of the calendar year 2006 and by the end of the calendar year 2008 for all others.

New Generation Practice Fire Shelters

Regular-size, complete (NSN: 6930–01–499–0605), shelter only (NSN: 6930–01–499–0608)

Large, complete (NSN: 6930–01–529–8807), shelter only (NSN: 6930–01–529–8805

New Generation Fire Shelters

Regular-size, complete, (NSN: 4240–01–498–3194), shelter only (NSN: 4240–01–498–3190)

Large, complete, (NSN: 4240-01-527-5248), shelter only (NSN: 4240-01-529-8804)

Additional information about the New Generation fire shelter is in the tech tip, *New Generation Fire Shelter Developed for Wildland Firefighters* (0351–2313–MTDC). This tech tip includes instructions for modifying existing fireline packs to accommodate the new shelter. Printed copies can be ordered from the Missoula Technology and Development Center (MTDC) at 406–329–3978. An electronic copy is available on the Internet at:

http://www.fs.fed.us/t-d/ (Username: t-d, Password: t-d).

About the Author

Tony Petrilli is an equipment specialist for the fire and aviation and safety and health programs at MTDC. He has a bachelor's degree in education from Western Montana College. Tony began working for the Forest Service in 1982 and joined the center full time in 2000. He has worked as a firefighter on the Lewis and Clark and Beaverhead National Forests and as a smokejumper for the Northern Region. He is also a division/group supervisor and type III incident commander.

Library Card

Petrilli, Tony. 2005. Large New Generation Fire Shelter Now Available. Tech Tip 0551–2325–MTDC. Missoula, MT: U.S. Department of Agriculture Forest Service, Missoula Technology and Development Center. 4 p.

Discusses development of a large size of the New Generation fire shelter that can improve firefighters' chances of survival if they become entrapped by fire. The large shelter is recommended for any firefighter who is taller than 6 feet 1 inch or whose girth is larger than 53 inches at any point. The large shelter fits in the same hard plastic liner and case used to carry the regular fire shelter.

Keywords: fire fighting, firefighting, safety at work, sizes

Additional single copies of this document may be ordered from:

USDA Forest Service, Missoula Technology and Development Center
5785 Hwy. 10 West
Missoula, MT 59808–9361
Phone: 406–329–3978
Fax: 406–329–3719
E-mail: *wo_mtdc_pubs@fs.fed.us*

For additional technical information, contact Tony Petrilli at MTDC.

Phone: 406–329–3965
E-mail: *apetrilli@fs.fed.us*

Electronic copies of MTDC's documents are available on the Internet at:

http://www.fs.fed.us/t-d/pubs/
Username: t-d, Password: t-d

Forest Service and Bureau of Land Management employees can search a more complete collection of MTDC's documents, videos, and CDs on their internal computer networks at:

http://fsweb.mtdc.wo.fs.fed.us/search/

The Forest Service, United States Department of Agriculture (USDA), has developed this information for the guidance of its employees, its contractors, and its cooperating Federal and State agencies, and is not responsible for the interpretation or use of this information by anyone except its own employees. The use of trade, firm, or corporation names in this document is for the information and convenience of the reader, and does not constitute an endorsement by the Department of any product or service to the exclusion of others that may be suitable.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status. (Not all prohibited bases apply to all programs.) Persons with disabilities who require alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD).

To file a complaint of discrimination, write USDA, Director, Office of Civil Rights, Room 326-W, Whitten Building, 1400 Independence Avenue, SW, Washington, D.C. 20250-9410, or call (202) 720-5964 (voice and TDD). USDA is an equal opportunity provider and employer.

INTERNET WEB SITE LINKS

www.fire.blm.gov/training/blmtrng/refresher.html
Web site for 2001, 2002, 2003, 2004, 2005, and 2006 Fireline Safety Refresher (Student Workbook and Facilitator Guide)

www.fire.blm.gov/

- Six Minutes for Safety
- Interagency Standards for Fire and Fire Aviation Operations, 2006
- Operational Documents and Reports
  View a variety of interagency guides, handbooks, publications, training sources, reports and investigation reports and reviews from high-profile fires.

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 2006
  - IRPG, January 2006 edition
  - Fire Fit
  - Taking Good Weather Observations
  - Vehicle Fires – The Hidden Dangers
  - NWCG Qualifications for Instructors of Refresher Training
  - Fireline Safety Refresher Training Video

  Hot Topics for 2006:
  - Radio Use and Narrowbanding
  - Conducting Effective Briefings
  - Firing/Ignition Techniques
  - Interagency Reviews and Investigations Database

- SAFENET
  Historical Wildland Firefighter Fatality Reports

www.nwcg.gov/pms/pms.htm

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

www.nwcg.gov/pms/pubs/pubs.htm

- National Fire Equipment System Catalog – Part 2 Publications 2005 Edition, Catalog Update (February 2006)
- Using Your Fire Shelter Video (2001), NFES 1568
- Your Fire Shelter Booklet, 2001 Edition, 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, 2004
- New Generation Fire Shelter Booklet (2003), NFES 2710, PMS 411
- New Generation Fire Shelter Video (2003), NFES 2711
- New Generation Fire Shelter DVD (2003), NFES 2712

www.firelineleadership.gov
Interagency Wildland Fire Leadership Development Program's Web site
(Leadership Toolbox includes information regarding Staff Rides and STEX/TDGS)

www.wildfirelessons.net
Wildland Fire Lessons Learned Center's Web site

www.firelinefactors.com
Brad Mayhew's Human Factors Tool for Wildland Firefighters

(Page intentionally left blank)

ANNUAL FIRELINE SAFETY REFRESHER COMMENTS

Today's Date: _____

How many seasons have you worked as a firefighter? _____

How many season have you worked in support of fires _____

What agency do you represent? _____

What is your current function in fire suppression?

- ☐ Line Firefighter
- ☐ Fireline Supervisor
- ☐ Other IMT Section
- ☐ Fire Support Personnel
- ☐ FMO/Resource Advisor/ Agency Administration

What will you do differently after viewing this refresher? (Refer to specific modules, if appropriate.)

_____

_____

_____

_____

_____

What topics would you like to see in future refresher programs?

_____

_____

_____

_____

_____

Feel free to provide additional comments on the back.

Facilitator, please return this form to the address below. Comments by e-mail are welcome.

BY MAIL: NIFC Fire Training
BLM Training Unit
Attn. Eva Brown
3833 S. Development Ave.
Boise, ID 83705

BY FAX: (208) 387-5378

E-MAIL: Eva_Brown@nifc.blm.gov

(Page intentionally left blank)