

Annual Fireline Safety Refresher Training

Student Workbook



Why Refresher Training?

The purpose of wildland fire suppression is to minimize damage to resources, property and the environment. This should be accomplished in the most operationally effective and fiscally responsible manner. But above all, we need to remember that no resource or property values are worth endangering life. Providing for the safety of firefighters is the number one priority and responsibility of every individual.

The objective of this presentation is to provide refresher training on the 10 Standard Fire Orders, 18 Watchout Situations, LCES, Downhill Line Construction, and Urban Interface.

This refresher video course is intended as an alternative to annual safety refresher training, which is required for all personnel participating in fire suppression or prescribed fire duties, specifically for fire personnel with fireline/operation qualifications, and non-fire personnel who have reason to be on the fireline unescorted.

Presentation Time Frames and Modules Content

Morning session: 3 hours and 15 minutes
 Covers: Modules 1-3
 Afternoon session: 2 hours and 20 minutes
 Covers: Modules 4-6

MODULE	MINUTES	DESCRIPTION	PAGE NO.
Module 1	48	10 Standard Fire Orders	8
		18 Watchout Situations	9
	15	Break	
Module 2	34	LCES (includes three think points).....	10
	15	LCES Exercise.....	12
	15	Break	
Module 3	32	Urban Interface (includes one think point).....	11
	15	Field discussion on specific issues of urban interface in your area	
	15	Break	
Module 4	10	Downhill Line Construction.....	7
	15	Downhill Line Construction Exercise	13
	15	Break	
Module 5	49	Common Denominators	11
		OK to Say No	
		Unrealistic Expectations	
		Team Transitions	
		Situational Awareness	
	After-Action Reviews		
15	Break		
Module 6	28	Video: <i>Using Your Fire Shelter</i> (USFS, Technology and Development Center, Missoula, 2000 updated version)	

Key Speakers

PAUL GLEASON

- 1964 Started his fire career in June as an engine crew member at Mt. Baldy
In July, he transferred to Dalton Hot Shots, Angeles National Forest, California
- 1972 Member of 20-person crew on Okonagon National Forest, Washington
- 1977-1990 Zig-Zag Hot Shots, Oregon
- 1991-1998 FMO as a Prescribed Fire Manager and Fire Ecologist, Ft. Collins, Colorado
- 1999-2000 Denver Regional Support Office, NPS

JOHN KREBS

- 1958 Summer employee on fire/trail/brush crew at Avery Ranger District,
St. Joe National Forest, Idaho
- 1959 Graduated from University of Kansas with chemistry degree
- 1959-61 Foreman of 25-person brush/fire crew at Avery Ranger District
- 1962 Became a permanent employee as timberscaler at Avery Ranger District
- 1963-65 FCO at Clarkia Ranger District, St. Joe National Forest
- 1965-95 FMO at Palouse Ranger District, St. Joe National Forest, 21 years as Fire Behavior
Analyst on R-1 National Incident Management Team
- 1995 Retired
- 1996 Worked as FBA on variety of fires and participated in FBA workshops

TED MASON, HOST

- 1980 Rural volunteer fire department in Central City, Colorado
- 1984 A.S. degree in Fire Science Technology, Training Officer
- 1988 B.S. degrees in Business Economics, Community Service and Liberal Arts,
Eastern Oregon State College
- 1989-2000 Union Hot Shots, Wallowa-Whitman National Forest, Oregon
BLM Smokejumper, Boise, Idaho
- 1993 MBA, University of Oregon
- 1995-2000 Summers: Smokejumper/Squad Leader/Spotter, BLM Boise
Winters: Course Coordinator, Great Basin Training Center, Boise, Idaho
- 2000 Training Specialist, BLM National Fire and Aviation Training Support Group,
Boise, Idaho

Panelists

BRAD BOLEN

- 1991-1993 Engine Crew/Helitack Crew, Boise District BLM
- 1994-1996 Lead Crewman Helitack, Boise District BLM
- 1997-1998 Assistant Foreman Helitack, Lower Snake River District, Boise, Idaho
- 1999-2000 Foreman Helitack, Lower Snake River District, Boise, Idaho
- 2000 Helitack Crew Supervisor, Lower Snake River District, Boise, Idaho

HECTOR MADRID

- 1985 Firefighter, Mimbres Ranger District, Gila National Forest, New Mexico
- 1989 Smokejumper Spotter/Squad Leader, Payette National Forest, McCall, Idaho
- 1996 B.S. in Forestry/Fire Science, Colorado State University
- 1999 Smokejumper Spotter/Training Specialist, BLM, Boise, Idaho

LAMAR LIDDELL

- 1983 Summer employee on the thinning/fire crew, Ashton Ranger District, Targee National Forest, Idaho
- 1984 Full-time engine crewperson on Ashton Ranger District, Targee National Forest, Idaho
- 1989 Graduated from Mississippi Valley State, Biology degree
- 1990 Boise Hotshots, Boise, Idaho
- 1994 Lead prescribed fire specialist for Mississippi Sandhill Crane Fish and Wildlife Refuge
- 1995 FCO at Mississippi Sandhill Crane Fish and Wildlife Refuge
- 1997 FCO/Federal Law Enforcement Officer, Mississippi Sandhill Crane Fish and Wildlife Refuge
- 1998 Superintendent of the Jackson Hotshots, BLM, Jackson, Mississippi

NICOLE HALLISEY

- 1990-1993 Type-2 handcrew member, Palouse Ranger District, Clearwater National Forest, Idaho
- 1993-1996 Lolo Hotshots, Missoula Ranger District, Lolo National Forest, Montana
- 1997 Dispatcher, Missoula Interagency Dispatch, Montana
- 1997-1999 Fire Technician (winter), prescribed fire, Big Cypress National Preserve, NPS, Florida
- 1998 Engine Module Leader, Las Vegas Field Office of BLM, Nevada

Original Ten Standard Orders

by John Krebs

My interest in fire behavior, particularly in relation to fireline safety, has not diminished with time. I've had an opportunity to stay involved in fire with three fire assignments in 1996 and 1998, as well as participating in a couple of the National Fire Behavior workshops put on by the region.

Having just finished reading Maclean's *Fire on the Mountain* I was again brought to tears at the tragic and senseless loss of those precious lives. The 1994 National FBA workshop included a visit to Mann Gulch. As we sat overlooking those 13 crosses, our thoughts were that this kind of event would not happen again because our knowledge of fire behavior and our emphasis on training had greatly improved. How wrong we were!

Where have we failed to make fire behavior the most important thought in the minds of our firefighters when they are actually engaged in the suppression activity?

Looking back to my first guard school training in 1958, I recall that the '10 STANDARD ORDERS' formed the framework for much of the teaching. The people who developed those original orders were intimately acquainted with the dirt, grime, sweat and tears of actual fireline experience. Those orders were deliberately arranged according to their importance. They were logically grouped making them easy to remember.

First and foremost of the Orders dealt with what the firefighters are there to encounter: "the fire."

1. Keep informed on fire weather condition and forecasts.
2. Know what your fire is doing at all times. Observe personally, use scouts.

3. Base all action on current and expected fire behavior of the fire.

Each of the 10 Standard Orders are prefaced by the silent imperative "YOU," meaning the on-the-ground firefighters, the person who is putting her or his life on the line!

My gut aches when I think of the lives that could have been spared, the injuries or close calls which could have been avoided, had these three Orders been routinely and regularly addressed prior to and during every fire assignment!

As instructors and fire behavior analysts have we become so enthralled with our computer knowledge and skills that we've failed to teach the basics? One does not have to be a full-blown 'gee whiz' to apply these Orders—they revolve around elementary fuels, weather, topography. These are things that are measurable and observable, even to the first year firefighter.

When we went out as a fire team and were 'briefed,' it was our responsibility to seek answers to basic questions—the first being, what is the weather forecast?

Following that were questions concerning what the fire was doing, where it was expected to go and how was it to be confined, contained, and/or controlled. Every firefighter is entitled to ask and receive answers to these same inquiries. I should reword that—every firefighter should be "required" to ask....

Logically following these three-fire behavior related orders were three dealing with fireline safety:

4. Have escape routes and make them known.

5. Post a lookout when there is possible danger.
6. Stay alert. Keep calm. Think clearly. Act decisively.

One cannot know if an escape route or a safety zone is adequate until the Orders addressing fire behavior have been specifically evaluated. How can it be that some of our most highly trained and experienced fire personnel can be on a fire such as South Canyon and not record even one, on-the-ground weather observation? Where did we as trainers go wrong?

I have a nephew who jumped out of McCall. Shortly after the South Canyon tragedy, I asked him if he ever carried a belt weather kit. His answer shocked me, “Uncle John, we don’t have room for those things.” Please tell me that has changed.

If humidities (reference *Fire on the Mountain*) were as low as 11 percent at 2400 hours on July 5, just what were they (doing) on the afternoon of July 6 on the western drainage? ‘How can a firefighter possibly keep informed on fire weather conditions . . .’ without on-site monitoring of relative humidities, wind, etc.

The next three 10 Standard Orders centered around organizational control:

7. Give clear instructions and be sure they are understood.
8. Maintain prompt communications with your men, your boss, and adjoining forces.
9. Maintain control of your forces at all times.

Again, if one hadn’t properly considered the first three fire behavior related orders, it would be impossible to think that Orders 7, 8 and 9 could be addressed with any validity.

The last of the 10 Standard Orders; “Fight fire aggressively but provide for safety first.”

This is the only Order, which I would change just slightly to ‘fight fire aggressively having provided for safety first.’

Read Maclean’s account (p.65) concerning what should be the last order, as they chanted the ten basic fire orders in training, the first order ‘Fight fire aggressively having provided for safety first.’

I can remember helping to teach some of the fire behavior (and related) courses in Missoula and asking the participants to write down all of the Fire Orders they could recall. There were students in S-390 (and higher) who could not recall more than three or four orders! But they always remembered, ‘Fight fire aggressively...’

It was encouraging to, me to learn from some first-year firemen that they were required to learn the Fire Orders in guard school. My fear is that this was merely an exercise in rote memory, as Maclean’s account would indicate. It’s something to chant but it is an exercise without memory.

I urge you to reestablish the original Ten Standard Orders. They were developed in a very special order of importance, grouped to make practical sense and most importantly when considered prior to and during every shift they will save lives.

The 18+ situations that shout watch out; LCES; Look up, Look down, Look all around; etc., are merely tools to reinforce the thought processes initiated by the original Ten Standard Orders.

John Krebs is a Fire Management Officer (Retired) for the US Forest Service, Palouse Ranger District, Clearwater National Forest, Potlatch, Idaho.

Downhill Checklist

Downhill fireline construction is hazardous in steep terrain, fast-burning fuels, or rapidly changing weather. Downhill fireline construction should not be attempted unless there is no tactical alternative. When building downhill fireline, the following is required:

1. Crew supervisor(s) and fireline overhead will discuss assignments prior to committing crew(s). Responsible overhead individual will stay with job until completed (TFLD or ITC4 qualified or better).
2. Decision will be made after proposed fireline has been scouted by supervisor(s) or involved crew(s).
3. L.C.E.S. will be coordinated for all personnel involved.
 - Crew supervisor(s) is in direct contact with lookout who can see the fire.
 - Communication is established between all crews.
 - Rapid access to safety zone(s) in case fire crosses below crew(s).
4. Direct attack will be used whenever possible; if not possible, the fireline should be completed between anchor points before being fired out.
5. Fireline will not lie in or adjacent to a chute or chimney.
6. Starting point will be anchored for crew(s) building fireline down from the top.
7. Bottom of the fire will be monitored; if the potential exists for the fire to spread, action will be taken to secure the fire edge.

Ten Standard Orders

Original and Revised

Original

1. Keep informed on fire weather conditions and forecast.
2. Know what your fire is doing at all times. Observe personally, use scouts.
3. Base all action on current and expected fire behavior of the fire.
4. Have escape routes and make them known.
5. Post lookout when there is possible danger.
6. Stay alert. Keep calm. Think clearly. Act decisively.
7. Give clear instructions and be sure they are understood.
8. Maintain prompt communications with your men, your boss, and adjoining forces.
9. Maintain control of your forces at all times.
10. Fight fire aggressively but provide for safety first.

Revised

Fight fire aggressively, but provide for safety first.

Initiate all actions based on current and expected fire behavior.

Recognize current weather conditions and obtain forecast.

Ensure instructions are given and understood.

Obtain current information of fire status.

Remain in communication with crew members, your supervisor, and adjoining forces.

Determine safety zones and escape routes.

Establish lookouts in potentially hazardous situations.

Retain control at all times.

Stay alert, keep calm, think clearly, act decisively.

Watchout Situations

(Survival Checklist)

- 1. Fire not scouted and sized up.
- 2. In country not seen in daylight.
- 3. Safety zones and escape routes not identified.
- 4. Unfamiliar with weather and local factors influencing fire behavior.
- 5. Uninformed on strategy, tactics and hazards.
- 6. Instructions and assignments not clear.
- 7. No communication link with crew members/supervisor.
- 8. Constructing fireline without safe anchor point.
- 9. Building fireline downhill with fire below.
- 10. Attempting frontal assault on fire.
- 11. Unburned fuel between you and the fire.
- 12. Cannot see main fire, not in contact with anyone who can.
- 13. On a hillside where rolling material can ignite fuel below.
- 14. Weather is getting hotter and drier.
- 15. Wind increases and/or changes direction.
- 16. Getting frequent spot fires across line.
- 17. Terrain and fuels make escape to safety zones difficult.
- 18. Taking a nap near the fireline.

LCES

L
ookouts



Objective Hazard



C
ommunications

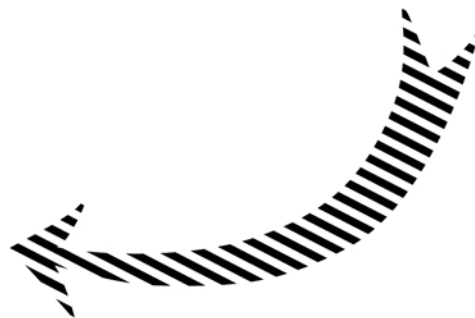


E
scape Routes



Firefighters

S
afety Zones



**LCES must be established and known
to ALL firefighters BEFORE needed!**

9 Urban/Wildland “Watchouts”

1. Wooden construction and wood shake roofs.
2. Poor access and narrow, one-way roads.
3. Inadequate water supply.
4. Natural fuels 30 feet or closer to structures.
5. Extreme fire behavior.
6. Strong winds.
7. Evacuation of public (panic).
8. Structures located in chimneys, box canyons, or on steep slopes in flashy fuels.
9. Bridge load limits.

Common Denominators of Fire Behavior on Tragedy Fires

1. Most incidents happen on smaller fires or on isolated portions of larger fires.
2. Fires respond quickly to shifts in wind direction or wind speed.
3. Flare-ups generally occur in deceptively light fuels.
4. Fires run uphill surprisingly fast in chimneys, gullies, and on steep slopes.

LCES Exercise

Discuss in groups the scenario based on the video just shown. Develop a solution on how you would accomplish the given task or objective.

Topography/Fire Location

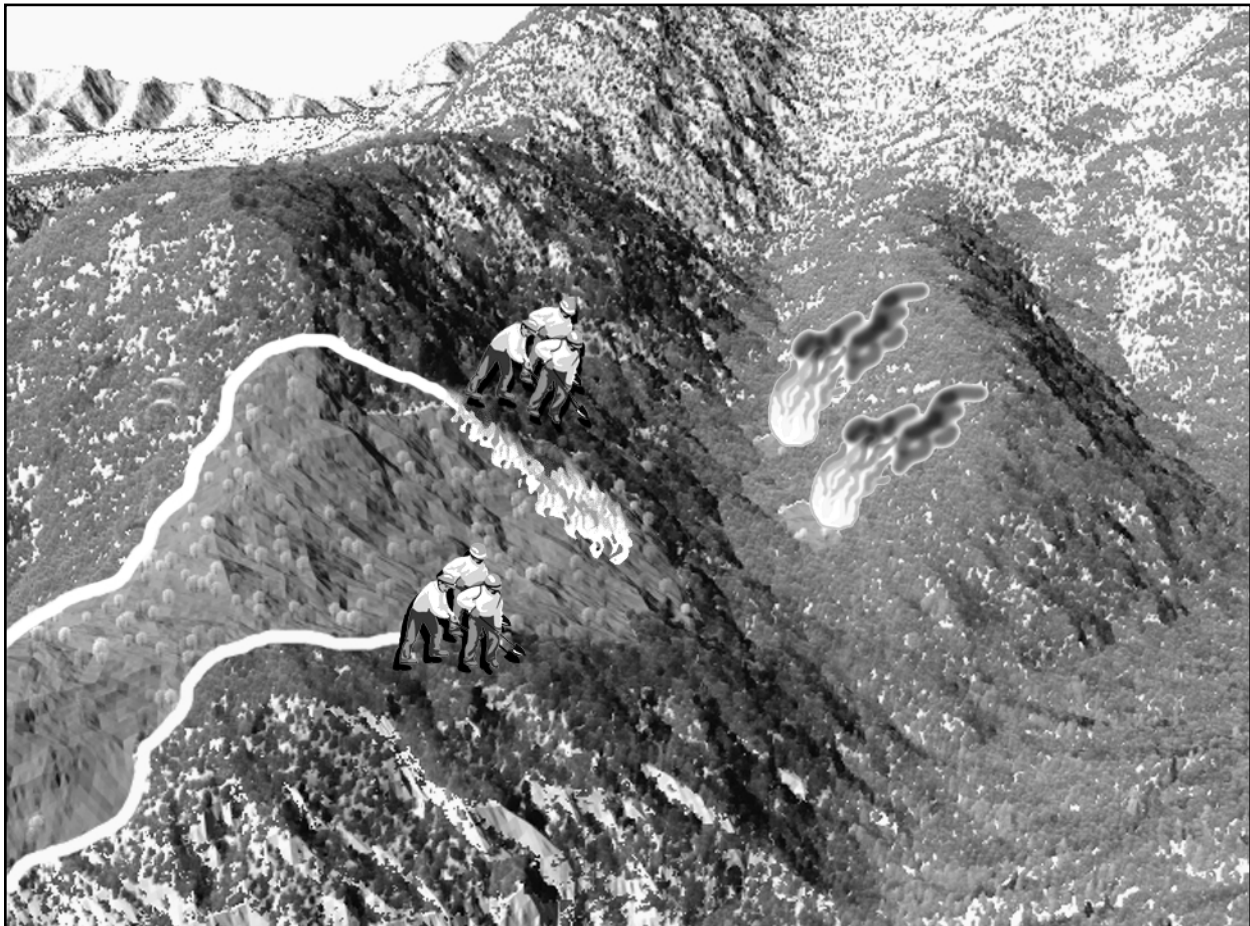
Early September, approximately 1730, western Colorado, steep mountainous terrain with converging canyons, no direct road access, no close dip sites

Fuels/Fire Behavior

Dense Gambell oak and pinion/juniper, flame lengths 10-75', dying strong winds, fire making occasional run, two spots reported across ravine ahead from main fire

Resources

On site: seven smokejumpers (one, ICT3 qualified), five-person squad en route, ordered two hand-crews, and for next day, retardant, helicopter with bucket and two water tenders with folding tanks



In class:

Assess the situation at hand.

If you were IC, would you have a fresh crew go across ravine to line the two spot fires? If so, how would you utilize LCES principles?

Downhill Line Construction Exercise

Discuss in groups the scenario based on the video just shown. Develop a solution on how you would accomplish the given task or objective.

Fire Location

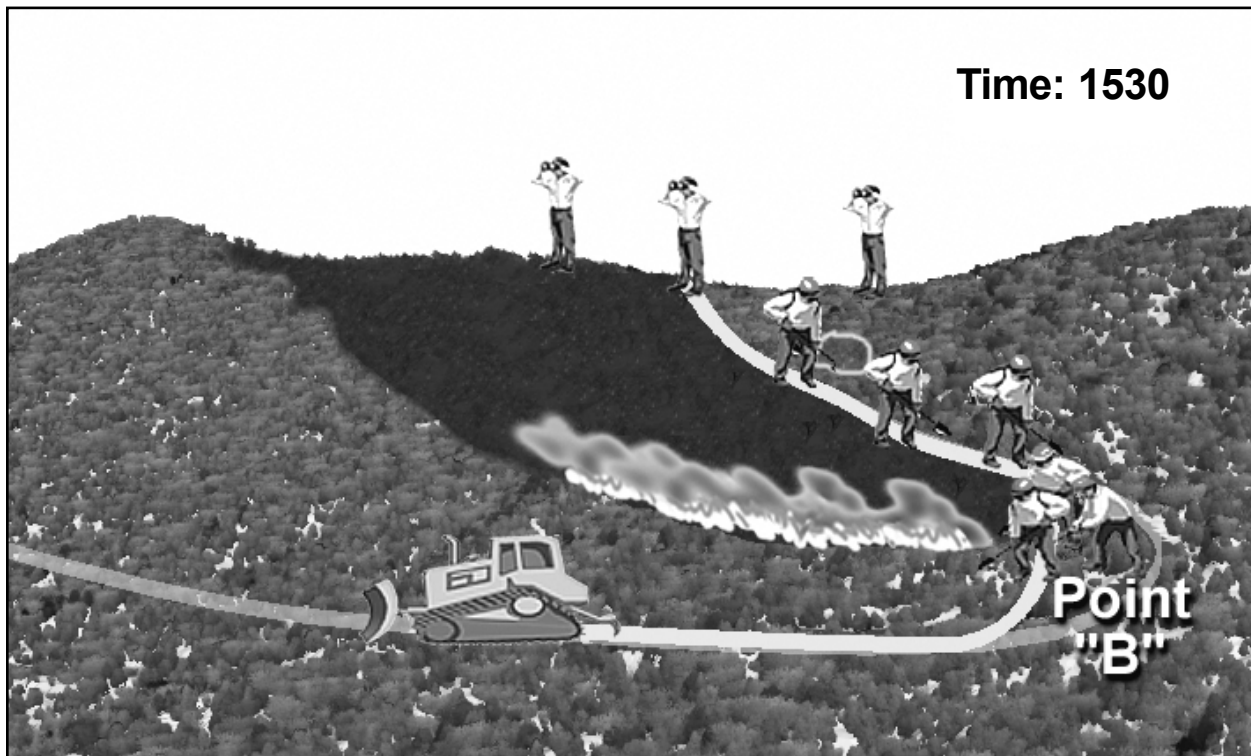
Western Nevada, moderate terrain, fire backing over ridge, drainage on a bottom of the ridge leads to a ranch and small community. Remainder of old route along the east side of the ridge turns west along the bottom of the ridge and into a well-used route along the top west side of the ridge.

Fuels/Fire Behavior

Sage and juniper, some heavy brush. Fire is active, flames up to 10', west wind, 5-10 mph, going up canyon, hot and dry, average temperature 95 degrees.

Resources

On site: two hand crews, two Type-6 engines, division supervisor, safety officer. Hot shot crew arrived at 0900. En route: one dozer to arrive at 1300.



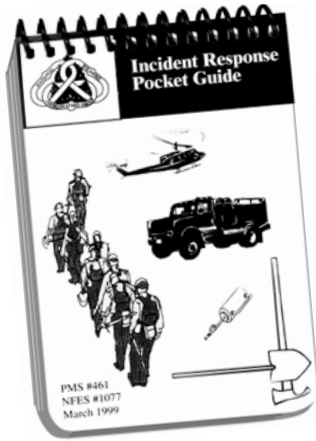
In class:

It is approximately 1530. You are at Point B.

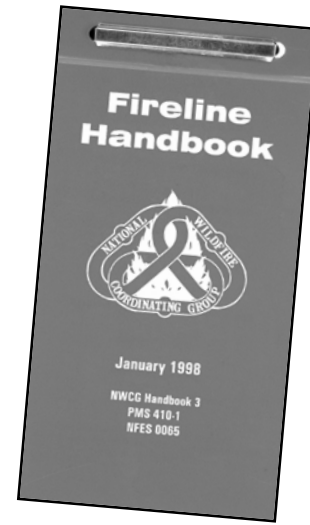
Assess the situation and formulate a plan.

Would you continue burning past the head of the fire? What watchouts are present? Where would you establish a safety zone for the dozer? What other safety concerns are there?

Where to Look



Incident Response Pocket Guide
PMS # 3461, NFES 1077



Fireline Handbook
PMS # 410-1, NFES 0065



WEBSITES

www.fire.blm.gov/

Select Operational Documents and Reports

From there you can view:

- Sadler Fire Entrapment
- South Canyon Fire Behavior
- Standards for Fire and Aviation Operations, “Red Book”
- Wildland Firefighter Fatalities
- ... and others

www.nifc.gov/

Select BIA logo, then click on Safety

- Kates Basin Fire Fatality Report

www.nwccg.gov/

Select Working Teams/Safety & Health/Entrapments and Fatalities/
Firefighter Entrapments and Fatalities for the year 2000

How Was It?

This video was made for you in hopes of adding some variety to the Annual Refresher Training. In the future, we would like to film some of the interviews in fire camps, on the actual fire line, and at home stations. It would be very helpful to us if you would let us know what you thought of this course by answering the following questions.

What did you think of the format of the Refresher?

- no improvement needed needs improvement no opinion

remarks _____

What did you think of the contents?

- too basic need more details add more subjects

remarks _____

Any suggestions?

Facilitator, please return the evaluations. Comments by e-mail are welcome.

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