

# 10 YEARS AFTER THE SOUTH CANYON TRAGEDY: THE GROWTH OF FIREFIGHTING SAFETY

A summary of the  
South Canyon Fire Ten Year Review of the Effectiveness of Planned Actions  
Prepared for the U.S. Forest Service by Safe Fire Programs, & Forest Stewardship Concepts  
June 23, 2004

On July 6, 1994, 14 firefighters were killed on the South Canyon Fire near Glenwood Springs Colorado. An Investigation Report was released on August 17, 1994 with causal factors and recommendations. These recommendations were reviewed and refined, and assignments made to implement them by the Incident Management Review Team. Ten years later, many advances in firefighting operations, technology and improvements in instilling a culture of safety have been made. The agencies recognize that with incidents such as the Thirtymile Fire and Cramer Fire fatalities in the last three years, the work is not completed, and efforts to enhance firefighter safety will never stop.

In collaboration with the Occupational Safety and Health Administration and our interagency partners via the National Wildfire Coordinating Group, the FS and the Department of Interior have implemented numerous significant changes to enhance firefighter and public safety.

**Key Points:** Firefighter safety improvements include:

## Policy & Planning

- Revising the Federal Wildland Fire Policy resulting in strengthening and clarifying objectives for fire safety and operations. Agency Administrators communicate this policy, including their expectations concerning safety and performance, in the form of suppression objectives for Incident Commanders to implement on their assigned wildfires through the delegation of authority.
- Identifying thresholds for critical fuels and weather conditions that lead to extreme burning conditions and publishing these on pocket cards for use by firefighters to assist in recognizing critical watch out situations. Pocket cards are issued to each fireline supervisor on Type 3, 4, and 5 wildfires.

## Weather

- Revised protocols to improve transmission of key weather information contained in Fire Weather Watches and Red Flag Warnings to all personnel on the fireline.
- Establishment of “predictive service” units (teams of meteorologists and intelligence officers who use fire behavior models) at coordination centers to improve fire danger predictions to field units. Information is used when planning and implementing preparedness actions, especially during periods of critical fire danger.

## Training

- Revision of firefighting courses to emphasize the basics of fire suppression and firefighter safety, to incorporate lessons learned from fatality and near-miss fires, and to emphasize situational awareness, risk assessment, and risk mitigation.
- Implementing mandatory, annual, fire safety refresher training for all fireline personnel, and the development of a comprehensive “Refresher Training” website to provide up-to-date training resources, emphasis items, and learning tools.
- Developing and implementing fire management courses for Agency Administrators and Fire Program Managers to improve the knowledge, skills, and abilities to manage the fire protection program on their Unit.
- Developing and distributing training packages on entrapment avoidance, deployment site management, and fire shelter deployment protocols to all field units for use in initial and refresher fire training. This training has been incorporated into the mandatory annual training for all fireline personnel.
- Developing a fire training “simulator” for use in various courses to enhance firefighter training related to critical fire danger conditions and fireline hazards through simulated fire scenarios.
- Developing and implementing Fatigue Awareness training to address fatigue management issues. The training is posted on a training website for easy access by fire managers.
- Developing and implementing a “Lessons Learned: Fatality Fire Case Study” course, where participants study historical tragedy fires and identify the hazards and risks associated with each fire and identify mitigation measures to use during similar situations in the future.
- Establishing a “Lessons Learned” program at the National Advanced Fire and Resource Institute. A user friendly format is provided for firefighters to identify and report the lessons they learned from any fire assignment, with the lessons posted on the Lessons Learned website for access and learning by other firefighters.
- Establishing the “Fireline Leadership” program and curriculum, which focus on small-unit leadership development, risk assessment and mitigation, tactical decision gaming, and experiential training methods?

## Equipment

- Developing and providing a new personal fire shelter that provides additional protection for firefighters entrapped in life threatening situations.

## Operations

- Managing risk in the fire suppression environment is one of our biggest challenges. A new, formalized, fire step process for assessing and managing risks has been developed and distributed to each fireline supervisor in an interagency Incident Response Pocket Guide.
- Requiring a complexity analysis for every fire at the time of initial attack as part of the size up, to ensure each fire receives the appropriate level of incident management, with documentation in the incident records.
- Requiring Incident Commanders to ensure all firefighting activities are in full compliance with the 10 Standard Fire Orders, and mitigation of the applicable “Watch Out Situations” has been accomplished.
- Establishing guidance on how to properly refuse risk (“turn-down” protocol) for firefighters to use if they believe an assignment is too dangerous. This reinforces the value that all firefighters are entitled to a safe assignment and serves as another tool in managing risk.
- Dispatching protocols to ensure that all personnel on fires are notified as to who is the Incident Commander, and when any changes in Incident Command occur, to avoid confusion on “who is in charge” of a fire.
- Establishing a standardized format to brief fireline personnel arriving at a fire addressing: planned suppression operations, hazards and risks, and critical fuels and weather conditions, and other crucial information. All arriving resources are required to be briefed prior to their assignment on the fire line.
- Refining, with interagency partners, the work/rest guidelines to manage fatigue and establishing a limitation on the maximum hours that can be worked each day that includes driving regulations as well.
- Directing Incident Commanders to manage fatigue and ensure firefighters comply with the work/rest guidelines of one hour of rest for every two hours worked after the first operational period, with documentation in the incident records.
- Adopting the handbook Standards for Fire & Aviation Operations to provide implementation guidance to field level fire and aviation managers.

## Management

- Conducting a comprehensive study of firefighter safety and the developing strategies for institutionalizing a strengthened sensitivity to fire safety. (the Tri-Data study 1996).

- Adopting and implementing the interagency fire program manager qualifications standards for the OPM GS-401 position series to enhance the level of fire management knowledge, skills, and abilities of managers.
- Establishing a full time Fire Safety Officer position in each FS region to provide direction and oversight to the fire operations safety program.
- Requiring Type 1, 2, and 3 wildfires (those of higher complexity) to have a full time dedicated Incident Commander, with no collateral duties.
- Developing and adopting the SAFENET system, used by firefighters to report and by management to address unresolved firefighter safety and related issues.
- Incorporated a program called “Six Minutes for Safety” with safety message reviews into the daily situation report issued by the National Incident Coordination Center. Each day brings a new safety discussion topic, with topics by day and by category available on the internet for managers.
- Developing and implementing a standardized “After Action Review” process to review what was planned on the fire, what actually happened, why it happened, and what was learned that can be applied on future fires?

#### Accountability

- Developing and implementing core competencies and performance standards for Agency Administrators to enhance their ability to provide direction and oversight to the fire protection program on their Unit.
- Directing Agency Administrators and Fire Managers to increase their inspections of fires for safety and health hazards, and to monitor the performance of Incident Commanders, with documentation in the incident records.

Additional information and tools for firefighter safety can be found on the internet at:

Lessons Learned:

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

Wildland Fire Leadership Development:

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

Wildland Fire Safety: A Comprehensive Program to Change a Culture

[www.fs.fed.us/fire/safety/index.html](http://www.fs.fed.us/fire/safety/index.html)

Fire Danger Pocket Cards

<http://famweb.nwcg.gov/pocketcards/>

Incident Response Pocket Guide (electronic form)

[www.nwccg.gov/pms/pubs/IRPG\\_Jan2004.pdf](http://www.nwccg.gov/pms/pubs/IRPG_Jan2004.pdf)

Firefighter Safety Awareness Study (1996 – also called the Tri-Data Study)

[www.fs.fed.us/fire/safety/investigations/index.html](http://www.fs.fed.us/fire/safety/investigations/index.html)

Annual Firefighter Refresher Training

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

Redesigned Fire Shelter Information

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

SAFENET

<http://safenet.nifc.gov/>

Accident Investigation Guide

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

Six Minutes for Safety

[www.nifc.gov/sixminutes/dsp\\_sixminutes.php](http://www.nifc.gov/sixminutes/dsp_sixminutes.php)

Fatigue Awareness Training

[www.fs.fed.us/fire/training/fatigue/fatigue.pdf](http://www.fs.fed.us/fire/training/fatigue/fatigue.pdf)