

**ISSUE PAPER
(Draft)**

Prepared for:

Submitted:

-----**Title:** Standard Fire Orders and Watch Out Situations: There is a Better Way.

Issue: Failure to comply with the 10 Standard Fire Orders and identify or properly mitigate the Watch Out Situations continues to be recognized as contributing to most, if not all, wildland fire entrapments. We need a better system for teaching and applying these tools in wildland fire situations in order to reduce future fire entrapments.

Background/Status: Over the past several years there have been numerous instances where confusion or misunderstanding of the fire orders and watch out situations has been identified during the investigations of wildland fire entrapments. After the South Canyon Fire in 1994, experienced Smokejumpers and Hot Shots claimed that in order to successfully fight fire aggressively they must routinely disregard the Fire Orders and Watch Out Situations. After this came to light, the wildland fire agencies made an effort to counteract this impression. The Agencies sent out the message that the 10 Standard Orders must be complied with at all times, where as, the Watch Out Situations were a tool for risk management and were to be utilized to help firefighters recognize situations with increased risk and mitigate those risks where necessary.

This was helpful direction, however much confusion still remains. During the investigation after the 30-Mile incident in 2001, young inexperienced firefighters, fresh from training, claimed that nobody really followed all those rules when they fought fire. It is obvious that we continue to experience a collapse in the understanding and application of the 10 Standard Fire Orders and the Watch Out Situations.

Currently the Fire Orders are worded and organized such that the first letter of the first word in each statement spells out FIRE ORDERS when arranged vertically. This was done in an effort to make the Fire Orders easier to memorize. Memorization is the lowest form of learning and the fire environment is extremely complex. **Simple memorization without an in-depth understanding of how to apply the Fire Orders and what they mean within the context of the fire environment renders these orders useless.** In 2001, Karl Brauneis described the "old" 10 Standard Fire Orders and how they were organized in a specific manner in order to facilitate the process of engagement and disengagement. This "old" organization of the Fire Orders allowed firefighters to use the Fire

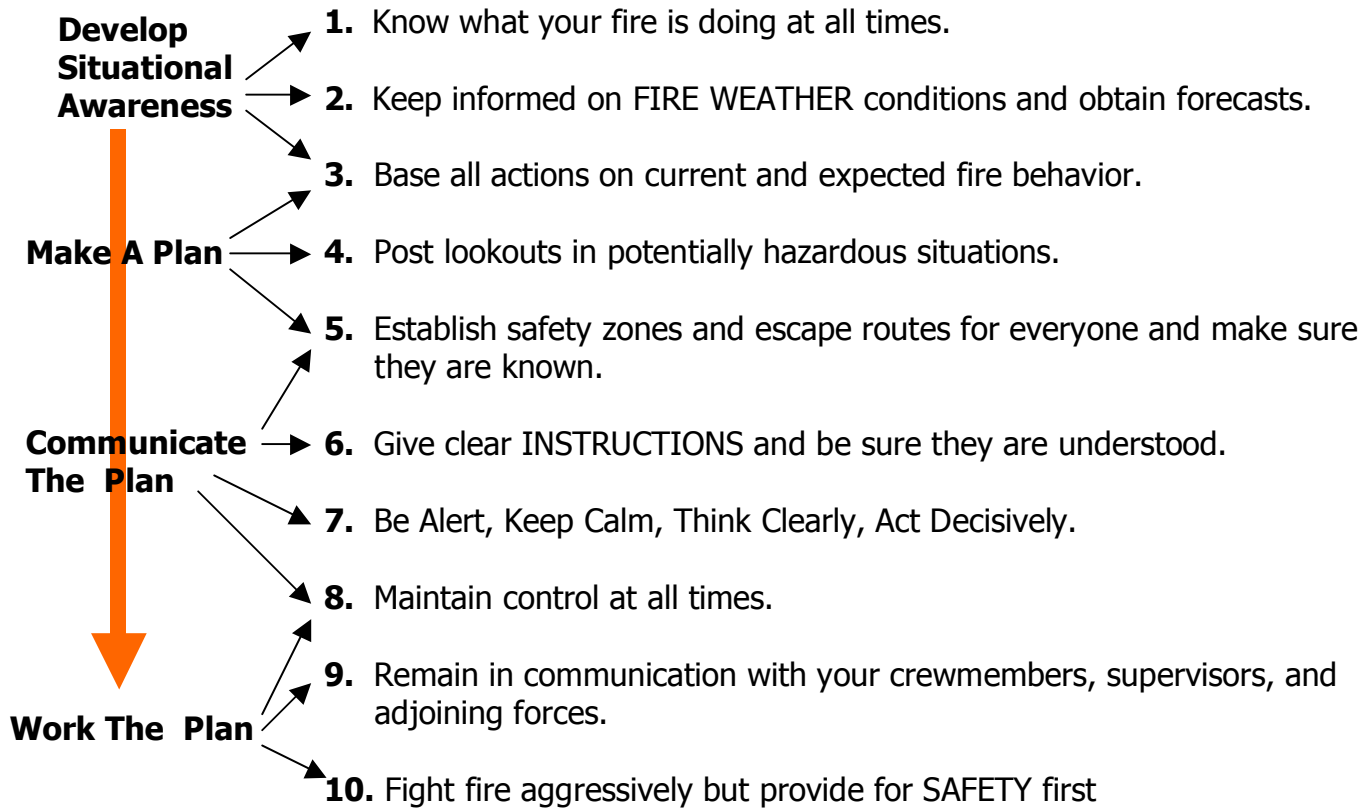
Orders as a sequential process within the dynamic fire environment. Firefighters could move back and forth through the Orders as the situation changed and make sure all the Orders were covered or “disengage” until they were and then if appropriate re-engage. A system such as this develops a much greater understanding and teaches situational awareness rather than simple memorization and regurgitation.

If the Fire Orders are to be complied with at all times and the Watch Out Situations are indicators of increased risk that can be mitigated, then why are 6 of the Watch Out Situations restatements of Fire Orders? This duplication creates significant confusion for firefighters who are trying to apply these concepts on the fireline. An example of this is the Fire Order: Determine safety zones and escape routes, and the Watch Out Situation: Safety zones and escape routes not identified. On one hand we are telling our firefighters that they cannot engage the fire until safety zones and escape routes have been identified and on the other hand we are telling them that they should be careful when they are fighting fire when safety zones and escape routes have not been identified. With these double messages it is no wonder that firefighters have difficulty buying into the validity of the Fire Orders and Watch Out Situations.

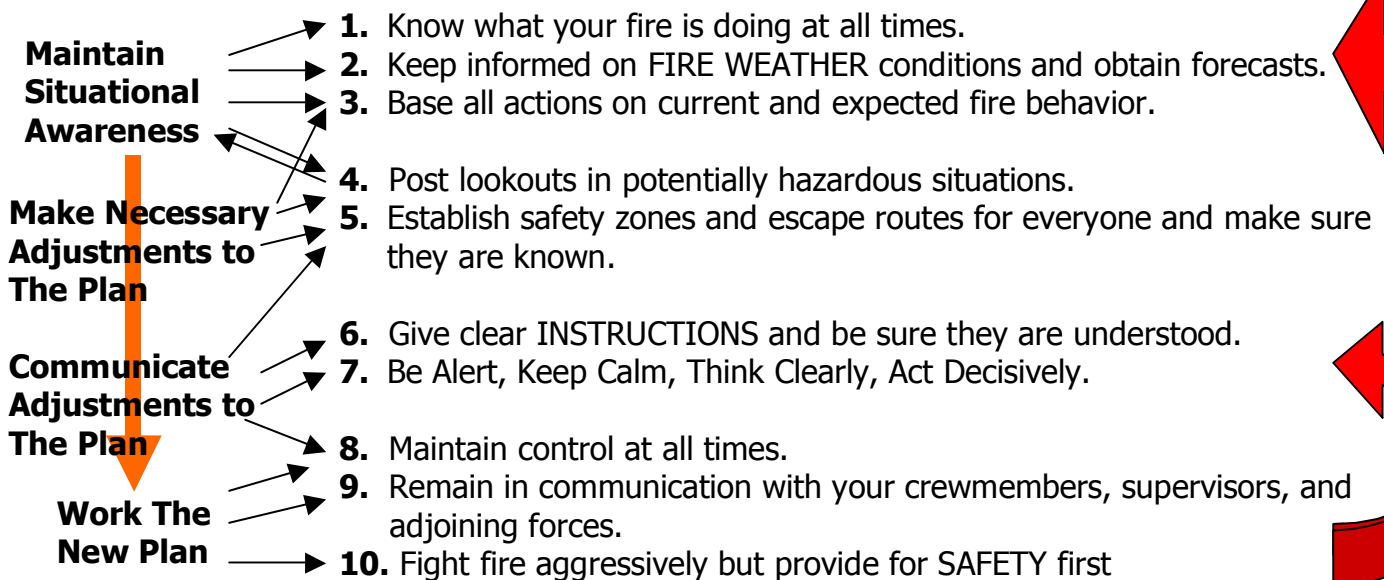
Recommendations:

- 1. Return to the “old” Fire Orders and teach them as a systematic/fluid model for developing and maintaining situational awareness and appropriate engagement and disengagement of the fire. The Fire Orders should use simple and direct language so they are easy to remember and understand.**
 - 1.** Know what your fire is doing at all times.
 - 2.** Keep informed on FIRE WEATHER conditions and obtain forecasts.
 - 3.** Base all actions on current and expected fire behavior.
 - 4.** Give clear INSTRUCTIONS and be sure they are understood.
 - 5.** Post lookouts in potentially hazardous situations.
 - 6.** Establish safety zones and escape routes for everyone and make sure they are known.
 - 7.** Be Alert, Keep Calm, Think Clearly, Act Decisively.
 - 8.** Maintain control at all times.
 - 9.** Remain in communication with your crewmembers, supervisors, and adjoining forces.
 - 10.** Fight fire aggressively but provide for SAFETY first

This model should be viewed as dynamic and continuous through time and space.



As the fire environment changes over time



Use of this model should be dynamic and continuous rather than static. For example, if situational awareness breaks down, firefighters could disengage to their safety zones. When situational awareness is regained, plans could be adjusted if necessary and new plans are then communicated to the firefighters. If appropriate, reengagement could then take place. In another example, the wind has increased and the weather is getting hotter and drier, our current situational awareness indicates that the newly expected fire behavior will render the current escape route ineffective. This information is communicated to crewmembers, supervisors, and adjoining forces. The plan is adjusted to account for anticipated changes in fire behavior. Appropriate escape routes and safety zones are identified and communicated to everyone. Adjustments to the plan are communicated and the new plan is put to work. This model should be taught and used as a continuous process of moving back and forth through the orders to ensure that: (1) Situational Awareness is up to date and accurate, (2) the Plan is safe and effective, (3) firefighters and supervisors know and understand the plan, and (4) the Plan is being worked safely and aggressively.

This model can be utilized at all levels and complexities of fire organizations. It is just as valid for a Type V initial attack as it is on a Type I incident. Incident Management Teams could utilize this model during their operational planning sessions to ensure the operational plans within the incident action plan (IAP) meet all of the 10 Standard Fire Orders. This would also allow Incident Management Teams to plan for putting systems and resources in place to ensure that the fire orders could continue to be met throughout operational periods within a dynamic fire environment.

2. The 6 Watch Out Situations that directly conflict with the Fire Orders should be removed.

Specifically:

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

- Fire not scouted and sized up.
- Cannot see the main fire and not in contact with anyone who can.

3. Base all actions on current and expected BEHAVIOR of the FIRE.

- Fire not scouted and sized up.
- Cannot see the main fire and not in contact with anyone who can.

5. Establish safety zones and escape routes for everyone and make sure they are known.

- Safety zones and escape routes are not identified.

6. Give clear INSTRUCTIONS and be sure they are understood.

- Uninformed on strategy, tactics and hazards.
- Instructions and assignments are not clear.

9. Remain in communication with your crewmembers, supervisors, and adjoining forces.

- No communication link with crewmembers or supervisor.

On one hand, under the 10 Standard Fire Orders, we are telling firefighters that they do not engage in firefighting unless they:

Know what their fire is doing at all times

Base all actions on current and expected BEHAVIOR of the FIRE

Establish safety zones and escape routes for everyone and make sure they are known

Give clear INSTRUCTIONS and be sure they are understood

Remain in communication with their crewmembers, supervisors, and adjoining forces.

Yet, on the other hand, under the Watch Out Situations, we are telling firefighters that they are assuming additional risk if they fight fire when:

The fire is not scouted and sized up

They cannot see the main fire and are not in contact with anyone who can

Safety zones and escape routes are not identified

They are uninformed on strategy, tactics and hazards

Instructions and assignments are not clear

They have no communication link with crewmembers or supervisor

This duplication adds unneeded confusion and sends a mixed message within an environment that can be extremely complex by its very nature. In fact, the only reasonable way to mitigate these specific Watch Out Situations is to bring them in line with the 10 Standard Fire Orders. Removing these six Watch Out Situations would allow us to send a strong and clear message to firefighters that in order to engage in firefighting, they must always, without exception:

- **Know what their fire is doing at all times**
- **Base all actions on current and expected BEHAVIOR of the FIRE**
- **Establish safety zones and escape routes for everyone and make sure they are known**
- **Give clear INSTRUCTIONS and be sure they are understood**

- **Remain in communication with their crewmembers, supervisors, and adjoining forces.**

The remaining 12 Watch Out Situations are valid as indicators of conditions or circumstances that increase risk during firefighting activities.

1. In country not seen in daylight.
2. Constructing line without safe anchor point.
3. Attempting frontal assault on a fire.
4. Unburned fuel between you and the fire.
5. Building fireline downhill with fire below.
6. On a hillside where rolling material can ignite fuel below.
7. Weather is getting hotter and drier.
8. Wind increases and/or changes direction.
9. Getting frequent spot fires across the line.
10. Terrain and fuels make escape to safety Zones difficult.
11. Taking a nap near the fireline.
12. Unfamiliar with local factors influencing fire behavior.

*Note: I have reworded Watch Out #12 and removed the word weather. Being unfamiliar with the weather is an unacceptable risk and violates one of the 10 Standard Orders. However, there are situations where local factors influence weather and thus fire behavior. This wording reduces confusion and more accurately describes the message we are trying to convey about local factors.

3. There are 5 additional Situations that have been recognized over the years as adding significant risk and contributing to numerous entrapments, injuries and fatalities. These Situations should be added to the Watch Outs.

- Working in an area where numerous snags and hazard trees are present.
- Management of the fire is transitioning.
- Driving when fatigued and/or in conditions where darkness, dust and/or smoke make visibility difficult.
- The fire is in the urban interface.
- You have significantly exceeded the 2:1 work/rest ratio or you have been operating at the 2:1 ratio for an extended period.

These situations are a good fit into the Watch Outs. They are all conditions that add significant risk to the fire environment. In fact, significantly more serious injuries and fatalities can be attributed to snags and vehicle accidents than fire entrapments. Recently efforts have been made toward safer and more effective transitions of management on incidents; however, there is still a period of time before the new management gains full situational awareness. There are often communications and supervision snafu that must be worked through and this regularly coincides

with escalating fire behavior, creating an environment of significantly elevated risk. Urban interface fires have long been recognized as presenting greater and unique risks to firefighters. As a result of this, an additional list of "Urban Interface Watch Outs" has been created and distributed. Work/rest guidelines are a topic that has received much discussion since the 30-mile incident. The "Black and White" answer that no one can exceed the 2:1 work/rest ratio, exceed 16 hours/shift or 24 hours for initial attack is unrealistic in the dynamic world of multiple priorities and high values at risk that we often encounter in wildland fire suppression. On the flip side, maximizing hours and consistently exceeding work/rest guidelines had become part of the accepted culture within many wildland firefighting organizations. Adding the work/rest guidelines to the Watch Outs will remove the unrealistic "Black and White" expectation that the guidelines will not be exceeded, yet also send a strong message that exceeding the work/rest guidelines significantly increases risk and doing so should be an unusual and calculated event that involves working through the risk management process.

The resulting "17" Watch Out Situations are listed below

1. You are in country you have not seen in daylight.
2. You are constructing line without a safe anchor point.
3. You are attempting a frontal assault on a fire.
4. There is unburned fuel between you and the fire.
5. You are building fireline downhill with fire below.
6. You are on a hillside where rolling material can ignite fuel below.
7. The weather is getting hotter and drier.
8. The wind increases and/or changes direction.
9. You are getting frequent spot fires across the line.
10. The terrain and fuels make escape to safety zones difficult.
11. You feel like taking a nap near the fireline.
12. You are unfamiliar with local factors influencing fire behavior.
13. You are working in an area where numerous snags and hazard trees are present.
14. The management of the fire is transitioning.
15. You are driving when fatigued and/or in conditions where darkness, dust and/or smoke make visibility difficult.
16. The fire is in the urban interface.
17. You have significantly exceeded the 2:1 work/rest ratio or you have been operating at the 2:1 ratio for an extended period.

Obviously, an understanding of the process of risk management is essential to fully understand the purpose and usefulness of the Watch Out Situations. Training in risk management techniques must be an integral part of teaching firefighters the Watch Out Situations.

Almost every serious incident and fatality investigation in wildland fire has indicated that several of the 10 Standard Fire Orders were not adhered to and/or several of the Watch Out Situations were not properly addressed. The 10 Standard Fire Orders and the Watch Out Situations are the basics of wildland firefighting. In order to be a safer and more effective wildland firefighting force, we simply need to be better at doing the basics. The recommendations in this issue paper provide the opportunity to take a fresh look at the basics and learn to do them better.

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