

Memorandum

To: Deputy Directors
Region Chiefs
Assistant Deputy Directors
Assistant Region Chiefs
Staff Chiefs
Unit Chiefs
Program Managers

Date: May 13, 2014

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From: Douglas Michael Ferro, Battalion Chief /Department Safety Officer
California Department of Forestry and Fire Protection (CAL FIRE)

Subject: **CAL FIRE 2014 FOCUS ON SAFETY**

DUE MONDAY JUNE 9TH 2014

The Focus on Safety is presented annually by the Department's Safety Program to enhance our risk management efforts and support the Department's Injury and Illness Prevention Program. The desired goal is to develop and maintain a high standard of safety throughout all operations and provide opportunities for a safe and healthful workplace.

This year's topics include:

- Review of the Injury Illness Prevention Plan Guide for Managers and Supervisors (IIPP-1)
- Trial By Drought: A Challenge for Firefighter Safety
- Fitness and Injury / Illness Reduction
- Remember "Back to the Basics"

Safety is the primary concern in our daily endeavors, especially when considering all activities involved in fire suppression efforts. This information serves as a reminder to all employees that communicating hazards and awareness of potential risk issues are paramount in reducing injuries and illnesses.

Unit and Program Managers are directed to develop the final module of the Annual Focus on Safety focusing on a relevant topic specific to local Unit and Program safety needs i.e. Personal Protective Equipment, Hydration-Nutrition-Wellness, Ergonomics, and General Work Space Safety etc.

Employees must document their review of the 2014 Focus on Safety by completing the Department's IIPP-6, Employee Training Sign-Up Sheet by Monday, June 9, 2014. Employees hired or returning from approved leave after June 10th should complete the process July 9, 2014 of their appointment or return. Please contact your Program/Unit Safety Coordinator if you have any questions.

Attachment: 2014 Annual Focus on Safety Packet



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INJURY AND ILLNESS PREVENTION PROGRAM

Requirement

The Injury and Illness Prevention Program (IIPP) is established, implemented and maintained in accordance with Title 8 of the California Code of Regulations, Section 3203. Who is responsible for the IIPP at your worksite?

Compliance

A template, “IIPP Guide for Managers and Supervisors” (IIPP-1), is available to provide compliance with Title 8 standards. By customizing the template, a written program is created for each specific facility or workplace. Where is the IIPP located at your worksite?

Review

A documented review of the IIPP is conducted at least annually, or whenever there is a change in personnel, introduction of new equipment and or procedures or facility modification. Is your IIPP current and accurate?

A BETTER QUESTION IS, ARE YOUR PERSONNEL EDUCATED ON THE IIPP PROCESS AND THE MANDATORY COMPONENT DOCUMENTS WITHIN THE IIPP-1?

First Module of the 2014 Annual Focus on Safety:

1. Review your facility IIPP-1 completely and make the appropriate updates.
2. Conduct a Tailgate Safety and review your updated facility IIPP-1 with your employees. Complete an IIPP-7 for each person and file the document along with a copy of the IIPP-6 in each employee’s training file.

<http://calfireweb/organization/fireprotection/safety/iipp.shtml>



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Trial by Drought: A Challenge for Firefighter Safety

California's drought conditions will pose unique safety challenges to wildland firefighting operations and CAL FIRE personnel this year. In a broad sense, California's drought condition touches every aspect of CAL FIRE's mission:

The California Department of Forestry and Fire Protection serves and safeguards the people and protects the property and resources of California.

Every year, CAL FIRE prepares our personnel and equipment for the worst possible scenario. This year, in addition to our seasonal challenges, CAL FIRE and our cooperators are faced with the unique effects and conditions of a State in drought. CAL FIRE Units are busy training current, returning, and new employees in preparation for this early fire season. Along with this training, supervisors should be guiding their subordinates through physical fitness, nutrition, hydration, and acclimatization, thorough equipment checks, providing direction, setting expectations and identifying the performance capabilities and limitations of our personal protective equipment (PPE) are also critical areas of focus.

It's extremely important that emergency response personnel have a thorough understanding of what their (PPE) will and will not protect them from. Every form of PPE has its own inherent capabilities as well as its limitations. PPE is not a suit of armor and no one item of PPE is designed to protect the wearer from all forms of exposures. Employees that are well versed in the protective performance of their PPE can make informed decisions regarding operational tactics. Absent that knowledge, firefighters could potentially expose themselves to a greater risk of injury while attempting to mitigate hazardous situations.

Protective performance capabilities come in several various forms. In the fire environment, PPE is intended to protect the wearer from the heat of a burning fuel(s). In the wildland environment, that form of heat is translated in the form of radiant energy. In the structural environment, radiant heat is a concern as well as is the possibility of conducted heat as burning material can drop directly on top of firefighters and firefighters often have to crawl over smoldering material as they extinguish on their way to the base of the fire. Knowing how much radiant or conducted heat your PPE will protect you from is essential in determining how close or how long you can or should remain in the fire environment.

Another form of heat related to PPE that must be considered is the physiological heat created by the firefighter. In order to increase the protective performance of PPE, fabric weight, or thickness, is increased or additional layers are added. When firefighters perform arduous activities, increased heart rate, increased blood pressure, increased respiratory rate, and increased core body temperature results.



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When arduous activity and heavy or layered PPE garments combine, the ability for the firefighter to release their physiological heat could be compromised, resulting in another potential exposure beyond that of the fire. Again, knowing the capabilities and limitations of your PPE is essential. Knowing how much heat or flame your PPE can be exposed to, and how well it will “breathe” can provide an opportunity for the wearer to make an educated decision on how to use it.

PPE is designed to protect the wearer from certain exposures. However, in certain ways, PPE is only as good as the wearer’s knowledge and ability levels are. Wearing and using PPE in the wrong way or application can potentially pose as much risk as using the right PPE the wrong way. A term known as “conflicting hazards” can pose unique challenges and one must be able to determine how to deal with that situation. The Wildland Urban Interface (WUI) environment can be laden with conflicting hazards ranging from burning vegetation, burning structures, downed power lines, hazardous materials, etc.

Another possible conflicting hazard is the firefighter themselves! PPE may protect you from external exposures to harm but what about internal exposures? Knowledge, ability, fitness level, acclimation, hydration, nutrition, rest are all examples of potential hazards to ourselves. The highest levels of protective performance from PPE can be quickly undermined if we are not positioned to protect ourselves from ourselves. Training, acclimating, hydrating, and eating right are crucial steps in protecting ourselves. Recognizing our own capabilities and limitations is key and communicating these to our supervisors and peers when we are reaching our limitations is essential. Staying informed and recognizing external factors that could affect us such as resource draw down, increasing fire activity, warming and drying trends, etc., should aid us in making the right decisions that guide us through our day to day routines and be better prepared for when we are called upon.

In addition to taking time and educating ourselves, and those we supervise, on our PPE there is another aspect of our firefighting education we need not neglect, and that is the weather. The awareness of the weather and the role it plays in our day to day operations is crucial to any hazardous operation CAL FIRE personnel are involved with. With California’s drought conditions presently being a focus the Safety Program has asked Predictive Services to provide CAL FIRE personnel with knowledge regarding the state’s drought conditions. The personnel at Predictive Services are formulating reports for weather and fire behavior forecasts in preparation for the season. (See attached “With Drought in Mind Document”)

The 2014 Focus on Safety is designed to catalyze safety awareness so every CAL FIRE employee is equipped with the knowledge and methods necessary to perform successfully and safely in what may prove to be a very challenging fire season. Initially, the goal is for all personnel to have a heightened awareness of California’s drought conditions and the effect these conditions can have on the fuel types



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and fire behavior. Secondly, overcoming these conditions and effects will prove to be the challenge of each CAL FIRE employee. However, with adequate preparation, training, and awareness, each CAL FIRE employee can reduce their exposure to situations involving potential injury or illness.

California's highly desirable Mediterranean weather often provides for hot, dry summers and mild, wet winters. According to the National Oceanic Atmospheric Administration (NOAA), California has been experiencing record low rainfall for the past 30 months; from July 2011 to December 2013¹. In January of this year, Governor Brown declared California to be in a drought state of emergency. How California's drought condition translates to us as CAL FIRE personnel is in such manners as an increase in early season low live and dead fuel moistures, fuel models more susceptible to ignition and available for burning, and potentially increasing California's overall fire activity.

Not only do these drought conditions make fuels more accepting to ignition, having low moisture content decreases the fuels ability to absorb the rate of energy released from burning fuels nearby. The increased energy released by fuels during combustion preheats other fuels and increases fire spread which elevates the potential for larger fires. Rapid fire spread is a component challenging CAL FIRE's goal of keeping 95% of wildland fires to ten acres or less on State Responsibility Area (SRA) lands. With California's population of over 38 million² in combination with being the number one vacation destination in the nation to the tune of an additional 14 million³ temporary residence, California's potential for human caused fire ignitions is substantial. In 2013, approximately 68 percent of the wildland fires investigated on SRA lands were determined to be human caused, not accounting for the "undetermined" category. Considering California's drought conditions ranging from our timber lands in the north to the brush stands in the south, these potential ignitions demands that our ground and aviation personnel maintain a heightened state of awareness and readiness. Whether your assignment is administrative by nature, patrolling one of the State's Forests, engaged in fire ground operations, or supporting one of CAL FIRE's 20 airbases, your valued contact with California's public could potentially decrease these ignitions. Educating the public in fire prevention and defensible space is crucial in limiting our personnel's exposure and improving their overall safety.

Another consideration to have during this critical time of low reservoir levels is that Governor Brown and the Department of Water Resources have asked Californians to be cognizant of their water use.

¹ <http://www.climate.gov/news-features/event-tracker/california-facing-worst-drought-record>

² U.S. Department of Commerce, United States census Bureau 2013

³ www.visitcalifornia.com



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CAL FIRE is a leading representative of the State and we need to conserve where we can during our daily operations. As an operational safety consideration, with the reservoirs reading critically low levels, common and familiar local water sources could prove to be undependable or even none existent. Updating pre-plans of local areas for available water sources and communicating with local water districts and landowners will be extremely beneficial in the heart of this fire season. Knowing and documenting the locations of dependable and adequate water sources for both ground and aerial resources in advance of an aggressive fire will prove invaluable.

In final, when talking about training and incident safety, CAL FIRE's Safety Program can't emphasize the roll situational awareness plays in our daily activities. Mental preparedness begins prior to any assignment. Your safety, and your crews' safety, should be first and foremost in your mind. Our knowledge, training and experience enable us to perceive the changes in our environment and guide us to determine what's safe. This means every CAL FIRE employee's situational awareness is valued in any given situation. Situational awareness is used to make decisions, lead and instruct others.

Power Incident (Rolling Material Near

Miss) http://calfireweb/organization/fireprotection/safety/documents/communications/sc13_21.pdf



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Reducing Injury and Illness

One cannot underestimate the importance of a healthy workforce. Studies have shown a healthy employee is more productive, has reduced absenteeism, improved morale and is less inclined to have lost work time due to injury or illness. In order to reduce injury or illness we must first be aware of the stressors being placed daily on our bodies, both mentally and physically. All occupations require some form of physical motion, whether lifting fire equipment or using a computer keyboard, there are correct methods of performing every task to prevent injury and discomfort.

We are also surrounded by daily stressors in our lives. If these stressors are not identified and addressed, they may have a major impact on our bodies resulting in poor health habits and reduced productivity.

The Center of Disease Control and Prevention has found evidence to suggest that stress plays an important role in several types of chronic health problems-especially cardiovascular disease, musculoskeletal disorders, and psychological disorders. When stressful situations go unresolved, the body is kept in a constant state of stimulation, which increases the rate of wear and tear. Once this happens, the body's ability to repair and defend itself can become seriously compromised. As a result, the risk of injury or disease may be increased. Simple ways to reduce stress are: exercise, focused breathing, massage, yoga or listening to music.

Physical injuries occur in various types; however, common to all CAL FIRE employees is a high occurrence of muscle or tendon strains. Strains are classified as either chronic or acute. Chronic strains are a result of overuse, while acute strains are a result muscle overload.

The charts shown below display the *Top 2 Injury Types for CAL FIRE Safety and Non-Safety* employees during the span of January 2009 to December 2013.

CAL FIRE Safety Employees Injury & Illness		
Injury Type (Top 2)	Lost Time (avg. days)	Modified Duty (avg. days)
Strain (26%)	42.0	13.3
Sprain (12%)	48.0	18.2

CAL FIRE Non-Safety Employees Injury & Illness		
Injury Type (Top 2)	Lost Time (avg. days)	Modified Duty (avg. days)
Strain (29%)	37.4	46.1
Sprain (10%)	14.4	41.4

There are numerous steps that employees can take toward reducing strains and sprains. One activity that can be adopted right away by CAL FIRE Safety and Non-Safety employees is a daily stretching



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routine, which can counteract those long periods of inactivity or repetitive motions that can quickly lead to joint and muscle stiffness.

Stretching can reduce the risk of injury

Based on research done by the Mayo Clinic, stretching can help improve flexibility and range of motion in your joints. Better flexibility may decrease your risk of injuries by helping your joints move through their full range of motion and enabling your muscles to work most effectively.

When you're stretching, focus on major muscle groups such as your calves, thighs, hips, lower back, neck and shoulders. Also stretch muscles and joints that you routinely use at work; regular stretching can aid in improving your balance and with injury prevention. This is also a great way to decrease the severity of a possible injury. A simple Google search for “ergonomic stretching exercises” is a great place to start. You will find a variety of stretches that can be performed at the office or home. Firefighternation.com is a great resource for examples on stretching and flexibility exercises for firefighters. This site covers various stretching techniques which include: static stretching, proprioceptive neuromuscular facilitation (PNF), ballistic stretching and dynamic stretching.

Often, illnesses and/or injuries can be prevented or at the very least, the negative effects can be reduced, through education and health promotion. For this reason, wellness and injury prevention is a vital component of CAL FIRE's infrastructure. The knowledge and awareness of staying fit, flexible and executing job duties in a safe manner is key to maintaining a healthy workforce.

References

CAL FIRE Injury Assessment and Prevention System (IAPS). Safety Program “Injury & Illness Trends” Report for 1/1/2013 – 12/31/2013.

Egherman, Monte. “Flexibility & Firefighting” August 2nd, 2011. <<http://www.firefighternation.com/article/firefighter-fitness-and-health/flexibility-firefighting>>

Mayo Clinic Staff. “Stretching: Focus on flexibility” March 04, 2014. <<http://www.mayoclinic.org/healthy-living/fitness/in-depth/stretching/art-20047931>>

“Stress.....At Work” <<http://www.cdc.gov/niosh/docs/99-101/>>.DHHS (NIOSH) Publication Number 99-101.



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Predictive Services Forecast

“With Drought in Mind”

The weather pattern during the past 4 to 6 weeks has been fairly progressive (meaning that there have not been many extended periods of hot/cold weather) with a greater frequency of storm systems moving into the West Coast. As a result, much of the state, particularly the northern portion, has received appreciable rains which has brought some relief to the extremely dry conditions that were present earlier this winter. Although this is the 3rd year of low precipitation, this is the 1st year of officially declared drought conditions. Currently the most severe drought conditions exist along the coast from Santa Barbara County, northward to the Bay Area, then extending eastward into the Sierra Front Country. These severe drought conditions are some of the worst the state has experienced in several decades and given the current and projected weather patterns for this spring and summer, no relief is in sight.

As a result, the amount of dead fuel is increasing across the region as the native trees and shrubs are being stressed and are beginning to die off. Live fuel moisture readings in most of the native brush as of early April have climbed above 80 percent, with some areas seeing values well above 100 percent. Most of the annual grasses below 3,000 feet are still green but are beginning to show signs of curing. Snowpack in the Sierra is around 70 percent below normal for this time of year with very little, if any, snow below 7,000 feet. Given the current weather and fuel conditions, fire activity during the next 3 to 5 weeks will generally be low across most of the region, except for the far inland valleys and desert passes where fires may spread more rapidly due to drier conditions. By summer, fires are expected to burn more actively, to consume more fuel, and to exhibit more extreme fire behavior than in years past. Also, there will be a greater likelihood for fires to burn at higher elevations in the timber which will result in longer duration incidents this summer.”



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REMEMBER THE BASICS

We review “The Basics” each year because these assist us in keeping safe; by utilizing “The Basics” in our daily operations, we save countless lives of our Brothers and Sisters on the fire grounds. Unfortunately firefighters die each year because “The Basics” are broken, forgotten or sacrificed in the course of firefighting operations. Several of our Blue Sheets, Green Sheets and Serious Accident Reviews performed within, and outside, our Department last year identified violations of the 10’s, 18’s or LCES as either causal or contributory factors in the accident.

These “basics” have been developed over the years in response to tragic incidents that resulted in the serious injury or death of firefighters all over the nation. Firefighting is an inherently dangerous profession. The dangers are increasing with changing weather patterns and more extreme fire behavior and burning conditions. Upgrades in Personal Protective Equipment (PPE) allows firefighters to get closer to the hazard and stay longer, thereby exposing them to greater risks than ever before. Do not be falsely led into thinking you are immune to injury. Just because it hasn’t happened to you doesn’t mean that it can’t or won’t.

As in previous years, the **2014 CAL FIRE Focus on Safety** contains a “Remember the Basics” module to help ensure these fundamental basics do not fall victim to decisions or operations during the heat of battle. The Ten Standard Fire Orders, the Eighteen Fire Situations that Shout “WATCH OUT”, the Common Denominators of Wildland Fire Fatalities, and the principles of LCES are the fundamental basics and must be reviewed each year by everyone from newest firefighter to the most experienced firefighter. DO NOT just commit them to memory but UNDERSTAND what you are committing to memory and why. Be able to recognize when the conditions or situations exist BEFORE the accident happens. Following these basic safety fundamentals can be the difference between a successful mission and a catastrophic one. The Safety Program would like to thank you for actively participating in the 2014 Annual Focus on Safety.



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Ten Standard Fire Orders

FIRE BEHAVIOR

- 1. Keep informed on fire weather conditions and forecasts.**
- 2. Know what your fire is doing at all times.**
- 3. Base all actions on current and expected behavior of the fire.**

FIRELINE SAFETY

- 4. Identify escape routes and safety zones, and make them known.**
- 5. Post lookouts when there is possible danger.**
- 6. Be alert. Keep calm. Think clearly. Act decisively.**

ORGANIZATIONAL CONTROL

- 7. Maintain prompt communication with your forces, your supervisor and adjoining forces.**
- 8. Give clear instructions and insure they are understood.**
- 9. Maintain control of your forces at all times.**

IF YOU CONSIDER 1-9, THEN

- 10. Fight fire aggressively, having provided for safety first.**



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Eighteen Fire Situations That Shout “WATCH OUT!”

- 1. The fire has NOT been SCOUTED and SIZED UP**
 - a. Use aerial recon
 - b. Use ground observations
 - c. Look for:
 - i. Fire size
 - ii. Fuel types and arrangement
 - iii. Topography
 - iv. Hazards
 - v. Safety Zones and Escape Routes
- 2. YOU are in country you have NOT SEEN IN DAYLIGHT!**
 - a. Be alert for changes in fire behavior
 - b. Watch for nature’s danger signals
 - c. Keep informed on weather forecasts
 - d. Maintain communications with fireline supervisors
- 3. SAFETY ZONES and ESCAPE ROUTES have not been IDENTIFIED**
 - a. Safety Zones
 - i. Void of vegetation
 - ii. Large enough to accommodate ALL personnel (4 times the flame height)
 - iii. Easy to deploy shelters (not in chimneys, saddles, or narrow canyons)
 - b. Escape Routes
 - i. Shortest distance to Safety Zone
 - ii. Relatively easy to travel
 - c. Make known to everyone
 - i. Visual markers
 - ii. Verbally
- 4. YOU are in an area where you are unfamiliar with local factors influencing FIRE BEHAVIOR!**
 - a. Be alert for changes in fire behavior
 - b. Watch for nature’s danger signals
 - c. Keep informed on weather forecasts
 - d. Maintain communications with fireline supervisors
- 5. YOU are UNINFORMED on strategy, tactics, and hazards**
 - a. Strategy: the overall plan to achieve the fire suppression objectives
 - b. Tactics: specific actions done to suppress the fire
 - c. Hazards:
 - i. Heavy fuel concentrations
 - ii. Chimneys



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- iii. Snags
 - iv. Falling operations
 - v. Firing operations
- 6. YOU have been given an assignment or instructions UNCLEAR TO YOU!**
- a. When given instructions, repeat them back, particularly if they are unclear
 - b. Know what you are supposed to do, before going on the line
 - c. Communicate with your supervisor
 - d. When possible, write down your instructions
- 7. YOU have NO communication link with crew members or supervisors**
- a. Stay alert to changing conditions
 - b. Stay alert to problems developing
 - c. Stay alert to blow up conditions
 - d. Maintain control and prevent panic
- 8. YOU are constructing fireline WITHOUT A SAFE ANCHOR POINT!**
- a. Choose a point or location not currently or likely in the future, to be threatened by fire spread
 - b. A place to begin your fireline where you're likely to hold your line
- 9. YOU are building a fireline downhill TOWARD A FIRE!**
- a. Have Escape Routes established
 - b. EXTREMELY dangerous situation
 - c. Stay with your crew
 - d. Post lookouts as necessary, be alert to conditions
 - e. Advanced fuels on upslope are pre-heated, will rapidly burn
 - f. Spot fires on upslope can be expected
 - g. Fire may generate momentum upslope and jump over hoselays or constructed hand lines
- 10. YOU are attempting a frontal assault on a fire**
- a. Watch for and suppress spot fires across road or line
 - b. Have established Escape Routes
 - c. Do not wander into the green at an oncoming fire, wait until it gets to where you are supposed to attack it
 - d. Follow orders
 - e. Be alert
- 11. YOU are in heavy cover with unburned fuel BETWEEN YOU and the FIRE!**
- a. EXTREMELY dangerous situation
 - b. Always requires that lookouts be posted at strategic points for constant observation
 - c. Line should be burned out behind you as it is being constructed
 - d. Be in constant communication with your fire line supervisor
 - e. Be prepared to use Escape Routes immediately



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- 12. YOU cannot see the main fire and you are not in communication WITH ANYONE WHO CAN!**
 - a. A dangerous situation at any time
 - b. Area should be thoroughly scouted
 - c. Post a lookout or lookouts as necessary
 - d. Be weather alert
 - e. Obey your supervisor

- 13. YOU are fighting fire on a hillside where rolling fire can ignite fuel BELOW YOU!**
 - a. Properly construct trenches on slopes to hold rolling material
 - b. Have established Escape Routes, know where they are
 - c. Cut your way into spot fires, don't just walk through the green
 - d. Post lookouts as necessary

- 14. YOU feel the weather getting HOTTER and DRIER!**
 - a. There will be a decrease in fuel moisture and humidity
 - b. Fuels will burn faster
 - c. Watch for increase in hot spots appearing on the fire line
 - d. Be alert to changes in fire behavior

- 15. YOU notice that the wind begins to blow, increase, or CHANGE DIRECTION**
 - a. Fire may begin to spread in a different direction
 - b. Your method of attacking and approach may now need to be changed
 - c. Be alert, post lookouts as necessary
 - d. Observe for changes in fire behavior

- 16. YOU are getting frequent spot fires OVER YOUR LINE!**
 - a. This is an indication fire conditions and weather are changing
 - b. Don't become trapped between two fires
 - c. If spot fires are taking off, this indicates lower fuel moisture
 - d. Be alert to what is happening around you

- 17. YOU are away from a burned area where terrain and/or cover make travel SLOW and DIFFICULT!**
 - a. Know where the fire is at all times
 - b. Know where you are going
 - c. Stay as close to the burn as possible
 - d. Don't bunch up, spread out, and be alert for rolling rocks towards firefighters below

- 18. YOU feel like taking a nap NEAR THE FIRELINE!**
 - a. Sleep in shifts if necessary
 - b. Sleep as a group and sleep only with permission from your fire line supervisor
 - c. Don't wander off from the crew, stay together
 - d. Never sleep in the green, always in the burn
 - e. Post a lookout to stay awake and protect crewmembers from fire



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LCES

Lookout(s)

- Experienced, competent, trusted
- Enough lookouts at good vantage points
- Knowledgeable of crew and location
- Knowledgeable of escape routes and safety locations
- Knowledgeable of trigger points
- Map, Weather Kit, Watch, IAP

Communication(s)

- Radio frequencies confirmed
- Backup procedures and check-in times established
- Provide updates on any situation changes
- Sound alarm early, not late

Escape Route(s)

- More than one escape route
- Avoid steep uphill escape routes
- Scouted for loose soils, rocks, vegetation
- Time consideration for slowest person, fatigue and Temperature factors
- Marked for day or nights
- Evaluate escape time vs rate of spread
- Vehicles parked for escape

Safety Zone(s)

- Survivable without a fire shelter
- Back into clean burn
- Natural feature (rock areas, water, meadows)
- Constructed sites (clearcuts, roads, helispots)
- Scouted for size and hazards
- Upslope? →
- Downwind? → **More heat impact** → **Larger Safety Zone**
- Heavy Fuels? →



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COMMON DENOMINATORS OF WILDLAND FIRE
FATALITIES

- 1.) On relatively small fires or deceptively quiet areas of large fires.
- 2.) In relatively light fuels, such as grass, herbs, and light brush.
- 3.) With unexpected shifts in wind direction or wind speed.
- 4.) When fire responds to topographic conditions and runs uphill.

Alignment of topography and wind during the burning period should be considered a trigger point to reevaluate tactics.



PERSONAL PROTECTIVE EQUIPMENT INSPECTION CHECKLIST

EMPLOYEE NAME: _____

DATE: _____

ASSIGNMENT: _____

INSPECTED BY: _____

COMPONENT	SUB-COMPONENT	INSPECTION POINTS	PASS	FAIL	COMMENTS
STRUCTURAL PPE					
HELMET <u>Brand Name:</u> <u>Model Number:</u>	SHELL	Melting, Bubbling, Dents, Cracks, etc.			
	GOGGLES/SHIELD	Visibility, Cracks, Warping, Attachment, etc.			
	SUSPENSION	Fit, Missing parts, Cracks, Tears, Installation, etc.			
	SHROUD	Proper installation, Burns, Tears, etc.			
	CHIN STRAP	Proper installation, Slides, Closures, etc.			
	LABELING	Manufacturer label, NFPA compliance, etc.			
	LOCAL REQUIREMENTS	Local Unit policy (i.e. name, rocker, magnets, etc.)			
HOOD <u>Brand Name:</u> <u>Model Number:</u>	HOOD	Burns, Tears, Elasticity, Seams, Fit, etc.			
	LABELING	Manufacturer label, NFPA compliance, etc.			
COAT <u>Brand Name:</u> <u>Model Number:</u>	OUTER SHELL	Closures, Pockets, Seams, Burns, Tears, etc.			
	MOISTURE BARRIER	Delamination, Seams, Tears, Attachment, etc.			
	THERMAL LINER	Delamination, Seams, Tears, Attachment, etc.			
	WRISTLETS	Elasticity, Seams, Tears, Shrinkage, etc.			
	LABELING	Manufacturer label, NFPA compliance, etc.			
LOCAL REQUIREMENTS	Local Unit policy (i.e. name, shoulder patches, etc.)				
PANT <u>Brand Name:</u> <u>Model Number:</u>	OUTER SHELL	Closures, Pockets, Seams, Burns, Tears, etc.			
	MOISTURE BARRIER	Delamination, Seams, Tears, Attachment, etc.			
	THERMAL LINER	Delamination, Seams, Tears, Attachment, etc.			
	SUSPENDERS	Elasticity, Tears, Fastening System, Fit, etc.			
	LABELING	Manufacturer label, NFPA compliance, etc.			
	LOCAL REQUIREMENTS	Local Unit policy			

NAME: _____

DATE: _____

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COMPONENT	SUB-COMPONENT	INSPECTION POINTS	PASS	FAIL	COMMENTS	
STRUCTURAL PPE (cont.)						
GLOVES <u>Brand Name:</u>	GLOVE	Tears, Burns, Holes, Seams, Flexibility, Liner, etc				
	<u>Model Number:</u>	LABELING	Manufacturer label, NFPA compliance, etc.			
BOOTS <u>Brand Name:</u>	BOOTS	Fit, Tears, Punctures, Waterproof, Steel Toe, etc.				
	<u>Model Number:</u>	LABELING	Manufacturer label, NFPA compliance, etc.			
WILDLAND PPE						
HELMET <u>Brand Name:</u>	SHELL	Melting, Bubbling, Dents, Cracks, etc.				
	GOGGLES	Visibility, Cracks, Warping, Attachment, etc.				
	SUSPENSION	Fit, Missing parts, Cracks, Tears, Installation, etc.				
	SHROUD	Proper installation, Fit, Closure, Burns, Tears, etc.				
	<u>Model Number:</u>	CHIN STRAP	Proper installation, Slides, Closures, etc.			
		LABELING	Manufacturer label, NFPA compliance, etc.			
	LOCAL REQUIREMENTS	Local Unit policy (i.e. name, rocker, magnets, etc.)				
NOMEX SHIRT <u>Brand Name:</u>	SHIRT	Tears, Burns, Seams, Pockets, Closures, Fit, etc.				
	SLEEVE LINER	Tears, Burns, Seams, etc.				
	<u>Model Number:</u>	LABELING	Manufacturer label			
		LOCAL REQUIREMENTS	Local Unit policy (i.e. name, markings, etc.)			
NOMEX PANT <u>Brand Name:</u>	PANT	Tears, Burns, Seams, Pockets, Closures, Fit, etc.				
	<u>Model Number:</u>	LABELING	Manufacturer label			
		LOCAL REQUIREMENTS	Local Unit policy (i.e. name, markings, etc.)			

NAME: _____

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COMPONENT	SUB-COMPONENT	INSPECTION POINTS	PASS	FAIL	COMMENTS
WILDLAND PPE (cont.)					
GLOVES <u>Brand Name:</u>	GLOVE	Tears, Burns, Holes, Seams, Flexibility, Liner, etc			
	<u>Model Number:</u>	LABELING	Manufacturer label		
BOOTS <u>Brand Name:</u>	BOOTS	Fit, Tears, Leather, Steel Toe, Lug soles, etc.			
	<u>Model Number:</u>	LABELING	Manufacturer label		
FIRE SHELTER <u>Brand Name:</u>	FIRE SHELTER	Size, Cracks, Deposits, Case, Liner, etc.			
	<u>Model Number:</u>	LABELING / SELECTION	Manufacturer label		
WEB GEAR <u>Brand Name:</u>	WEB GEAR	General condition, Fit, etc.			
	<u>Model Number:</u>	CANTEENS	Half gallon minimum, General condition, etc.		
HEADLAMP <u>Brand Name:</u>	Headlamp	General condition, Wiring, Attachment, Power, etc.			
	<u>Model Number:</u>				

NAME: _____

DATE: _____

COMPONENT	SUB-COMPONENT	INSPECTION POINTS	PASS	FAIL	COMMENTS
MISCELLANEOUS PPE / ACCESSORIES					
SCBA <u>Brand Name:</u>	MASK	Fit, Lens clarity, Spider Straps, Exhalation valve, etc.			
	<u>Model Number:</u>	SCBA	Harness, Bottle, PASS, Gauges, Cleanliness, etc.		
EMS PACK <u>Brand Name:</u>	HEPA MASK	Fit, Tears, Holes, Strap elasticity, Rating, etc.			
	POCKET MASK	Seal, Damage, One-way valve, Case, etc.			
	<u>Model Number:</u>	ISOLATION GOWN	Fit, Tears, Holes, Closures, Rating, etc.		
	MEDICAL GLOVES	Fit, Tears, Holes, Latex allergies?, etc.			
	EYE PROTECTION	Fit, Lens clarity, ANSI certified, Non-vented, etc.			
	LOCAL REQUIREMENTS	Local Unit policy			
HEARING <u>Brand Name:</u>	EAR PLUGS	General condition, Fit, Rating, etc.			
	<u>Model Number:</u>	EAR MUFFS	General condition, Fit, Rating, etc.		
	LOCAL REQUIREMENTS	Local Unit policy			
BEE VEIL <u>Brand Name:</u>	BEE VEIL	Holes, Tears, Closures, Fit, Rating, etc.			
	<u>Model Number:</u>	LOCAL REQUIREMENTS	Local Unit policy		
<u>Brand Name:</u>					
<u>Model Number:</u>					