

4 – Safety

Policy

Firefighter and public safety is our first priority. All Fire Management Plans and activities must reflect this commitment. The commitment to and accountability for safety is a joint responsibility of all firefighters, managers, and administrators. Individuals must be responsible for their own performance and accountability.

Safety comes first on every fire, every time.

The Ten Standard Fire Orders are firm. We don't break them; We don't bend them. All firefighters have the right to a safe assignment. (*Federal Wildland Fire Policy, January, 2001*)

Every supervisor, employee, and volunteer is responsible for following safe work practices and procedures, and identifying and reporting unsafe conditions.

Every firefighter, every fireline supervisor, every fire manager, and every agency administrator has the responsibility to ensure compliance with established safe firefighting practices.

Attention to safety factors is critical to the individual employee incident position evaluation process. These evaluations must be honest appraisals of performances. The documentation of sub-standard or unsafe performances is mandatory.

USFS – See the U.S. Forest Service Code of Conduct in Chapter 2.

Agency Specific Safety Policy Guides

BLM – *BLM Handbook 1112-2*

FWS – *Service Manual 241 FW7, Firefighting*

NPS – *DO-50 and RM-50 Loss Control Management Guideline*

USFS – *FSH-6709.11 Health and Safety Code Handbook*

Goal

The goal of the fire safety program is to provide direction and guidance for safe and effective management in all activities. Safety is the responsibility of everyone assigned to wildland and prescribed fire, and must be practiced at all operational levels, from the National Fire Director, state/regional director, and unit manager—to employees in the field. Agency administrators need to stress that firefighter and public safety always takes precedence over property and resource loss. Coordination between the fire management staff and unit safety officer(s) is essential in achieving this objective.

For additional safety guidance and reference refer to:

- *Fireline Handbook (PMS 410-1, NFES 0065)*
- *Incident Response Pocket Guide (PMS 461, NFES 1077)*
- *Wildland Firefighter Health & Safety Report, (MTDC Publication)*
- *National Interagency Mobilization Guide (NFES 2092)*

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Risk Management Process

The risk management process identified in the NWCG *Incident Response Pocket Guide (IRPG)* helps ensure that critical factors and risks associated with fireline operations are considered during decision-making.

The Risk Management Process checklist can be found in **Appendix B**.

Job Hazard Analysis (JHA)

A job hazard analysis will be completed whenever tasks or activities have potential to cause serious injury or illness to personnel and/or damage to property, material, or the environment. See example JHA form in **Appendix C**. Additional JHA information can also be obtained at www.fs.fed.us/r1/people/jha/jha_index_www.html.

Work/Rest Guidelines

The policies regarding Work/Rest, Length of Commitment and Rest and Recuperation are quoted from the *Interagency Fire Business Management Handbook* that is currently being revised. When the *Interagency Fire Business Management Handbook* revisions are issued they will supersede those sections found in the *Interagency Standards For Fire and Fire Aviation Operations*.

To maintain safe, productive incident activities, incident management personnel must appropriately manage work and rest periods, assignment duration, and shift length for crews, overhead personnel, and support personnel. Plan for and ensure that crews, overhead personnel, and support personnel are provided a 2 to 1 work to rest ratio (for every 2 hours of work or travel, provide 1 hour of sleep and/or rest). The incident commander or agency administrator shall document, approve, and include in the daily incident records, the justification for work shifts exceeding 16 hours, including travel time, after the first operational period.

Personnel assigned as full time drivers of trucks (including pickups) and passenger-carrying vehicles are limited regarding time worked. The Federal Motor Carriers Safety Regulations, part 395.3 and State laws restrict those drivers whose assignment requires a commercial driver's license (CDL) to 10 hours driving time in a 15 hour duty day with 8 hours off between shifts. Drivers whose duty period is not limited by law may not exceed 10 hours driving time in a 16 hour duty day with 8 hours off between shifts.

The Time Officer's/Unit Leader's approval of the Emergency Firefighter Time Report (OF-288) certifies that the required documentation is on file and no further documentation is required for pay purposes.

Length of Commitment

In order to provide for safe, efficient, and effective support to wildland fire operations the following policy on length of assignments is established. This policy applies to all firefighters, overhead, dispatchers, and support personnel.

Incident assignments will not exceed 14 days, excluding travel. There may be situations where life and property are so imminently threatened, or suppression objectives are close to being met, that an exception is necessary to smoothly allow for replacements. Incident Commanders and agency administrators (responsible for the incident and home unit) will monitor the situation and jointly agree on extensions.

The incident commander will document, gain approval from agency administrators, and include the justification in the incident records, for any assignment that exceeds 14 days. However, no assignment will exceed 21 days except as stated in the following paragraph. Strong consideration and management of firefighting resources must ensure that back-to-back assignments are considered in the health, readiness, and capability of the resource. The health and safety of incident personnel and resources will not be compromised under any circumstance.

During National Preparedness Level 5, personnel can be given two days R&R after the first 14-day assignment and be extended or reassigned up to an additional 14 days. This would be based on concurrence with the resource and its home unit. At the end of the second 14-day assignment, the resource will be released to its home unit. Excluding travel, the resource should be allowed a minimum of four days off before reassignment.

Military battalions are mobilized on a 30-day commitment (including training and travel), by proper agreement, as well as the Strike Team Leaders and Battalion Liaisons assigned to those units.

However, the incident commanders will give strong consideration as to the health and condition of these crews by varying the intensity and exposure of their assignments. Government and contract pilots will adhere to the standards in the *Interim Flight and Duty Limitations, National Interagency Mobilization Guide (NFES 2092), Chapter 20, Section 24.12*.

When filling incident assignments, individuals and their supervisors should consider when the requested individual's last day off occurred, a prior to mobilization, to ensure the individual's readiness and capability for the assignment.

The length of the commitment for state crews and other cooperators may be specified in existing agreements and will take precedence. However, the safety and welfare of the firefighting resource should always be considered.

Rest and Recuperation (R&R)

As a general rule, regular government employees and casuals are not guaranteed specific days of paid rest and recuperation within an emergency incident. ICs and agency administrators will utilize R&R to give personnel proper rest so they remain productive, physically capable, and mentally alert to perform their jobs safely.

Rest and Recuperation During Incident

The need for R&R at an incident during a 14-day assignment (excluding travel) is normally not necessary. R&R may be provided if it is determined that the individual's fatigue level may jeopardize safety and welfare.

If the incident commander has determined that a longer than 14-day commitment is necessary (See Section 12.7-2 *Interagency Incident Business Management Handbook, IIBMH*), R&R guidelines of one full day (24 hours) in a 14-day assignment or two full days in a 21-day assignment should be applied.

R&R can be provided at the incident, at another location, or at the home unit, upon return from the incident. The decision to implement R&R should be based on when the individual's last day off occurred, the fatigue level, and incident work requirements.

The IC is responsible for the R&R implementation standard for all agencies at incident base. The agency administrator is responsible for R&R implementation standard at support sites (e.g., Expanded Dispatch, Buying Team location, cache). Time spent in R&R shall not include travel time.

When facilities (including incident base or command post) are provided for R&R, time spent at these facilities by regular government employees and casuals is compensated only to that extent needed to complete the guaranteed hours (8, 9, or 10) for that calendar day. Do not record this on-shift time as specific clock hours for that day.

Record "R&R" in the hour's column on the Crew Time Report, SF-261, and the Emergency Firefighter Time Report, OF-288.

Home unit timekeepers shall record R&R time as base hours if the R&R occurs during the regular government employee's scheduled workdays, or as overtime hours if the R&R occurs during the regular government employee's normal days off.

Personnel assigned to an incident who return to their home unit for R&R are not compensated on their regular days off, including holidays. (See Section 12.5, *IIBMH* Off-Shift Time.)

Personnel, who leave an R&R facility for personal reasons not related to R&R, rather than official reasons, are placed in off-duty status. Record the total hours of R&R the individual actually spent at the facility.

Indicate on the OF-288 in the "Remarks" block when the individual was released for personal reasons. The home unit will charge leave if the regular government employee has not fulfilled the basic tour (such as 40-hour week, 36/44- or 35/45-hour week). Do not charge leave when a regular government employee is on overtime.

R&R facilities should provide the following where practical:

- Eight hours of uninterrupted sleep;
- Facilities for showering and washing clothes;
- Commissary or other sources to secure essential items;
- Access to a public telephone for personal calls; and
- Smoke free environment.

Casuals held at the incident may be provided R&R within these guidelines.

For regular government employees and casuals assigned to an incident at their home unit, refer to Section 12.5, Off-Shift Time.

Rest and Recuperation Upon Return From an Incident

The IC or agency administrator may recommend that a regular government employee, upon return to home unit, be given R&R in lieu of providing R&R in association with the incident.

Base this recommendation on the fatigue level of the individual. The recommendation must be in writing and must be signed and dated by the IC, agency administrator, or other line officer having incident support responsibilities.

In accordance with 5 U.S.C. 6104, 5 CFR 610.301-306, and 56 Comp. Gen. Decision 393 (1977)

- The agency administrator or employee's supervisor should authorize R&R if presented with the written recommendation. R&R must occur on the calendar day/days immediately following the return travel and may be charged to incident funds (See Section 12.1-2).
- The agency administrator may authorize administrative leave in accordance with agency regulations if no written recommendation is provided. Administrative leave must occur on the calendar day/days immediately following the return travel and is charged to home unit funds.
- Pay entitlement for the rest and recuperation or administrative leave cannot be authorized on the individual's regular day off.
- Home unit timekeepers will record R&R as base hours unless the R&R falls on the regular government employee's normal day off or a holiday. No pay is received on a normal day off; agency holiday pay regulations apply for the holiday. Home unit timekeepers will record administrative leave according to agency requirements.
- Casuals are not entitled to R&R or administrative leave upon release from the incident.

BLM – Employees authorized for R&R at the home unit will use the pay code 060.

Management Directed Days Off

Supervisors must manage work schedules for initial attack, dispatch and incident support personnel during extended incident situations. During periods of non-routine or extended activity, these employees will have a minimum of 1 day off in any 21-day period. (State policies may be different and should be followed.)

This "minimum requirement" should be rarely needed since scheduled days off are normally given much more frequently during periods of routine activity. Indicators of the need for a day off include long shifts, but equally important, the actual observation of the physical and mental condition of the employee. This is a critical responsibility of every manager and supervisor.

Required days off for all employees not assigned to an incident are non-compensable when they occur on the employee's scheduled day(s) off. Management directed day(s) off on an employee's scheduled workday(s) are considered excused absences and are compensable. Home unit timekeeper should record management directed days off as Administrative Leave and charge to home unit funds.

Driving Standard

All employees driving motor vehicles are responsible for the proper care, operation, maintenance and protection of the vehicle. The use of government-owned, rented, or leased motor vehicles is for official business only. Unauthorized use is prohibited.

- Employees must have a valid state driver's license in their possession for the appropriate vehicle class before operating the vehicle.
- Operating a government-owned or rental vehicle without a valid state driver's license could result in disciplinary action.
- All drivers whose job duties require the use of a motor vehicle will receive initial defensive driver training within three months of entering on duty and refresher driver training every three years thereafter.
- The operator and all passengers are required to wear seat belts and obey all federal and state laws.
- All traffic violations or parking tickets will be the operator's responsibility.

Emergency Driving

Emergency driving is defined as driving for all incidents requiring the response of a fire protection organization's attack or support units:

- No driver will drive more than 10 hours (behind the wheel) within any duty-day.
- For non-Commercial Driving License (CDL) driving, current national interagency work-rest policy serves as duty-day limitation and driver rest requirements. Duty day will not exceed 16 hours for non-CDL drivers.
- All driving requiring CDL will be performed in accordance with applicable Department of Transportation regulations found in 49 CFR 383 and 390-397. (No driver of a vehicle requiring a CDL will drive the vehicle after 15 hours on duty during any duty-day.) Exceptions: An additional 2 hours of driving time may be added if: a driver encounters adverse driving conditions, unforeseen emergency situations (breakdown), or to ensure the safety of personnel.
- Multiple drivers in a single vehicle may drive up to the duty-day limitation provided no driver exceed the individual driving (behind the wheel) time limitation of 10 hours.
- To manage fatigue, every effort should be made to conduct mobilization and demobilization travel between 0500 hrs and 2200 hrs.
- Drivers are responsible to follow these policies and it is the supervisor's responsibility to ensure that employees adhere to the proper driving limitations and monitor employee fatigue.

Non-Emergency Driving Limitations

These limitations are agency specific and need to refer to respective agency policy, normally found in agency safety and occupational health handbooks.

NPS – FIREPRO funds are authorized to pay for the cost of CDL licensing fees and exams, necessary for employees to operate fire equipment, with one exception. That exception involves those cases where a test has been failed and must be retaken, in which case the employee will be responsible for costs associated with additional testing.

Emergency Fire Vehicle Operation Standards

Engines will not exceed 65 mph or the appropriate speed limit (which ever is more restrictive), even if the posted speed limit is greater than 65 mph. Operators of all other vehicle types must abide by state traffic regulations.

Headlights and taillights will be illuminated at all times while the vehicle is in motion. Emergency lighting will not be used except when performing suppression or prescribed fire operations, or to mitigate serious safety hazards. Overhead lighting and other emergency lighting must meet state code requirements, and will be illuminated whenever the visibility is reduced to less than 300 feet. Blue lights are not acceptable for wildland fire operations.

Personal Protective Equipment (PPE)

All personnel assigned on wildfires and prescribed fires are required to use Personal Protective Equipment (PPE) appropriate to their duties and/or as identified in JHAs . Employees must be trained to use safety equipment effectively.

Common permanent-press materials are not to be worn, as they melt and stick to the skin when exposed to flame or heat. Because most synthetic fibers melt when exposed to flame or extreme radiant heat, personnel should wear only undergarments made of 100 percent cotton or wool, aramid, or other fire resistant materials.

NPS – Aramid clothing will be cleaned or replaced whenever soiled, particularly with oils. Aramid clothing will be replaced when the fabric is so worn as to reduce the fire resistance capability of the garment or is so faded as to significantly reduce the desired visibility qualities. Any modification to personal protective equipment that reduces the fire retardant ability such as iron-on logos, is an unacceptable practice and will not be allowed on fires. Due to the strength of aramid weave, snagging is generally ineffective. It also makes the pants unsuitable for trade-in for clean pants or for return to the cache system. No personal protective equipment will be purchased that does not meet or exceed USDA Forest Service or National Fire Protection Association Standards.

Required PPE includes:

- 8-inch high, lace-type work boots with non-slip (Vibram type), melt-resistant soles and heels.
- fire shelter
- hard hat with chinstrap
- goggles/safety glasses
- ear plugs/hearing protection

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- aramid shirts
- aramid trousers
- leather gloves

Wear additional PPE as identified by local conditions, material safety data sheet (MSDS), or JHA.

Head Protection

Personnel must be equipped with hard hats and wear them at all times while on the fireline. Hard hats must be equipped with a chinstrap, which must be fastened while riding in, or in the vicinity of, helicopters.

Acceptable helmets for fireline use are “helmet, safety, plastic” (NFES 0109, 8415-01-055-2265/GSA) listed in *NWCG National Fire Equipment System Catalog: Fire Supplies and Equipment*, or equivalent helmet meeting 1977 NFPA standard requirements and ANSI Z89.1-1986. Hard hats consist of two components; the shell and the suspension, which work together as a system. Both components require periodic inspection and maintenance. Specific inspection and maintenance instructions are found in an *MTDC Tech Tip* publication (0267-2331-MTDC).

Eye and Face Protection

The following positions require the wearing of eye protection: nozzle operator, chainsaw operator/faller, heliport and ramp personnel, and retardant mixing crews. Other duties may require eye protection as identified in a specific JHA.

Face shields providing full face protection must be worn when working in any position where face protection has been identified as required in the job specific JHA: Terra-Torch®, power sharpener operators, etc.

Hearing Protection

Personnel who are exposed to a noise level in excess of 80db must be provided with, and wear, hearing protection. This includes, but is not limited to, chainsaw operators/fallers, pump operators, helibase and aircraft ramp personnel, retardant mixing personnel, and any other personnel exposed on a regular basis to damaging noise levels. Other duties may require hearing protection as identified in a specific JHA.

Neck Protection

Aramid fiber “shrouds” are not required PPE. If used, the shrouds must meet the design and performance requirements identified in the NFPA 1977 Standard on *Protective Clothing and Equipment for Wildland Fire Fighting, 1998 ed.* If issued, shrouds should be deployed only in impending flash fuel or high radiant heat situations and not routinely worn throughout the operational period, due to increases in physiological heat stress.

Leg Protection

All chainsaw chaps will meet specification USFS 6170-4F. All chainsaw operators and swampers must wear chainsaw chaps maintained as per the manufacturer’s specifications.

Foot Protection

Personnel assigned to fires must wear all leather, lace-type work boots with non-slip (Vibram type), melt-resistant soles and heels. The leather top must be at least 8 inches in height, measured from the top of the heel (Alaska exempt). The boots are a condition of employment for firefighting positions and are purchased by the employee prior to employment.

FWS – Red carded fireline permanent, temporary and seasonal Fish and Wildlife Service personnel will be provided with boots from station funds not more often than every three years. Emergency or casual firefighters will provide their own boots. Some refuge situations may require special footwear such as waders, hip boots, snake boots, etc. *Fire Management Handbook 1.5.3 Equipment.*

NPS – Government funds will be utilized for purchase of wildland fire boots for those employees currently red carded/certified in positions which require wildland and prescribed fireline duties. Secondly, the individual employee must be available to perform those duties when assigned; if not routinely available for park fire assignments, FIREPRO funds should not be used to purchase boots for that employee.

FIREPRO funds, not to exceed \$100 a pair, may be used to purchase or repair boots. Other government funds, such as from safety, protection or maintenance accounts, may also be used for purchase or to augment FIREPRO funds, dependent on local management direction. Costs to repair boots not damaged on fire should be charged to other appropriate accounts.

Wildland fire boots must have 8-inch uppers (minimum), be constructed of leather, be lace-up, with a non-melt lug type sole. They differ from many standard safety shoes/boots in that full-length metal shanks are not permitted, and steel toes are optional, depending on application. This difference is due to heat transfer problems arising from standing in very hot environments such as embers and ash.

It is the responsibility of the local FMO to determine those employees requiring boots as personal protective equipment, and the frequency of necessary replacement or repair. Boots will be considered similar to uniform items and will not be subject to cache item return, due to health, sanitation, and individual sizing considerations.

Fire Shelters

Fire shelters will be issued and worn by all line personnel. Fire shelters will be inspected regularly, to ensure they meet agency and manufacturer standards. "Training" shelters will be deployed at required annual fireline safety refresher training. Supervisors and firefighters must never rely on fire shelters instead of using well-defined and pre-located escape routes and safety zones. The shelter is to be viewed as a last resort, and will not be used as a tactical tool. When deployed on a fire, fire shelters will remain in position and not be removed pending approval of authorized investigators.

Fireline Safety

Incident Briefings

Fire managers must ensure that safety briefings are occurring throughout the fire organization, and that safety factors are addressed through the IC and communicated to all incident personnel at operational briefings. The identification and location of escape routes and safety zones must be stressed. A briefing checklist can be found in **Appendix D** and in the *Incident Response Pocket Guide*.

LCES—A System for Operational Safety

- L – Lookout(s)
- C – Communications(s)
- E – Escape Route(s)
- S – Safety Zone(s)

LCES is a safety procedure put in place before fighting the fire. It is a self-triggering mechanism that functions sequentially: lookouts assess and reassess the fire environment; lookouts communicate safety threats to each firefighter; firefighters use Escape Routes and move to Safety Zones.

- Before safety is threatened, each firefighter must be informed on how LCES will be used.
- LCES must be continuously reevaluated as fire conditions change.

While individual lookouts may be designated and posted, all firefighters should be alert to changes in the fire environment and have the authority to initiate communication.

Escape Routes and Safety Zones

An Escape Route is “a preplanned and understood route firefighters take to move to a Safety Zone or other low-risk area.”

A Safety Zone is “a preplanned area of sufficient size and suitable location that is expected to protect fire personnel from known hazards without using fire shelter.”

Identification of Escape Routes and Safety Zones is one of the primary responsibilities of any wildland firefighter working on or near the fireline. The following guidelines can be used when selecting Safety Zones:

- 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 (greater than 50%).
- 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 4 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. The calculations in the table below assume no slope and no wind.

Flame Height	Distance Separation (Firefighters to Flames)	Area in Acres
10'	40'	1/10 ac.
20'	80'	1/2 ac.
50'	200'	3 ac.
75'	300'	7 ac.
100'	400'	12 ac.
200'	800'	50 ac.

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 to 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 crew. One acre is approximately the size of a football field or exactly 208' x 208'.

Incident Safety Oversight

Agency administrators need to be actively involved in the management of wildfires, and personally visit an appropriate number of escaped fires each year. PPE is required for certain scenarios. Fire and aviation management staff can provide the appropriate PPE and guidance (See Chapter 4).

USFS – Line Officers, Fire Program Managers, and/or Safety and Health Program Managers shall conduct supplemental inspections on a minimum of 10% of their unit's Type 3, 4, and 5 fires and document their inspections in the incident records.

At least one person, operationally qualified at a level commensurate to the complexity of the incident, should be assigned the responsibility for safety oversight. Consider ordering additional resources when any of the following conditions exist:

- A fire escapes initial attack or when extended attack is probable.
- There is complex or critical fire behavior.
- There is a complex air operation.
- The fire is in an urban intermix/interface.

Every individual has the right to turn down unsafe assignments; they also have the responsibility to identify alternative methods of accomplishing the mission. See **Appendix E** "How to Properly Refuse Risk."

Unit/Area Closures

Threats to public safety may require temporary closure of a unit/area, or a portion of it. When a fire threatens escape from the unit, adjacent authorities should be given as much advance notice as possible in order to achieve orderly evacuation.

Thunderstorm Safety

Approaching thunderstorms may be noted by a sudden reverse in wind direction, a noticeable rise in wind speed, and a sharp drop in temperature. Rain, hail, and lightning occur only in the mature stage of a thunderstorm.

Observe the 30/30 rule:

- If you see lightning and hear thunderclaps within 30 seconds take storm counter-measures identified below.
- Do not resume work in exposed areas until 30 minutes after storm activity has passed.

During a storm use the following guidelines:

- Take shelter in a vehicle or building if possible.
- If outdoors, find a low spot away from tall trees, wire fences, utility lines and other elevated conductive objects. Make sure the place you pick is not subject to flooding.
- If in the woods move to an area with shorter trees.
- If only isolated trees are nearby, keep your distance twice the tree height.
- If in open country, crouch low minimizing contact with the ground. You can use a pack to sit on, but never lay on the ground.
- If you feel your skin tingle or your hair stand on end, immediately crouch low to the ground. Make yourself the smallest possible target and minimize your contact with the ground.
- Don't group together.
- Don't stay on ridgetops, in wide open areas, near ledges or rock outcroppings.
- Don't operate landline telephones, machinery, or metal handtools.
- Don't handle flammable materials in open containers or metal handtools.
- Handheld radios and cellular telephones **can** be used.

Standard Safety Flagging

The NWCG recommends the following standard for wildland fire (prescribed and suppression) activities:

- **Safety Zones/Escapes Routes.** Hot-pink flagging marked "Escape Route" (NFES 0566). Crews with colorblind members may wish to carry and utilize lime-green flagging in addition to the hot-pink flagging.
- **Hazards.** Yellow with black diagonal stripes, fluorescent, biodegradable, 1 inch wide (NFES 0267).

If the above recommendation is not utilized on an incident, the incident will need to identify the selected color and make known to all firefighters.

Unexploded Ordnance (UXO)

Millions of acres in the United States contain unexploded ordnance (UXO), most a result of weapons system testing and troop training activities conducted by the Department of Defense. This property includes active military, formerly used defense (FUD), and base realignment and closure (BRAC) sites. The risks posed by property containing UXO could be great depending on the types and amount of UXO present and how the property is or may be used.

Those who use and manage property with UXO, as well as those responsible for making decisions regarding the property, need information on the risks presented by UXO, options for eliminating or reducing the risks, and factors to be considered in the decision-making process.

A person's ability to recognize a UXO is the first and most important step in reducing the risk posed by a UXO hazard.

The following types of UXO are those most likely to be encountered on active military sites and FUD and BRAC sites:

Small arms munitions	Hand grenades
Rockets	Guided missiles
Projectiles	Mortars
Projected grenades	Rifle grenades
Submunitions	Bombs

UXO may be found fully intact or in parts or fragments. All UXO, whether intact or in parts, present a potential hazard and should be treated as such.

A UXO that has deteriorated presents a particular hazard because it may contain chemical agents that could become exposed.

UXO Safety and Reporting. UXO, whether present in an area by design or by accident, poses the risk of injury or death to anyone in the vicinity.

- If you did not drop it, do not pick it up.
- When you see UXO, stop. Do not move closer.
- Do not use radios within 500' of UXO. Including walkie-talkies, citizens' band radios or cellular telephones.
- Do not attempt to remove any object on, attached to, or near a UXO.
- Do not move or disturb a UXO.
- Clearly identify the UXO area so ordnance experts can locate the item.
- Secure traffic through the UXO hazard area.
- Keep a minimum of 500 feet away from any UXO that is on fire.
- Report discovery of UXO to your immediate supervisor, state police, law enforcement or HAZMAT specialist.
- Metallic sounds during line construction should be investigated immediately.
- Any operation around UXO site is a no go until Explosive Ordnance Disposal provides clearance.

A Designated Ordnance Impact Zone (Red Zone) is an active or inactive area preidentified as a UXO impact site. No fire operations will be attempted within one mile of these sites unless cleared by an Explosive Ordnance Disposal unit. For more information see *Unexploded Ordnance, A Guide for Land Managers, Protection and Response Group (WO360)*, BLM.

Hazardous Materials

When encountering hazardous materials on an incident, the supervisor should ascertain whether suppression action is necessary in light of the added risk. The supervisor should keep his or her subordinates clear of the area and immediately notify the safety officer. Where it is necessary to go into a hazardous area, employees should be given clear and direct instructions on the use of necessary and applicable personal safety equipment and proper actions and movements while they're exposed to the hazard.

Purchasing. Purchase of hazardous materials (products containing chemicals) should be done using waste minimization principles to prevent surplus of product. Many products are sold with a shelf life that can expire before use if not managed properly. Material

Safety Data Sheets (MSDSs) will be obtained at time of purchase and used as part of safety briefings.

Use. Use of any product containing chemicals must be in compliance with OSHA's *Hazard Communication Standard, 29 CFR 1910.1200*. The primary elements of that standard require employee training, MSDSs (including hazard determination), inventory of products, and a written hazard communication plan intended to protect employees using the products.

Storage. Proper storage of hazardous materials is essential for the protection of employees. This is particularly important in the case of flammables and combustibles. The quantity of product affects storage requirements, and should be considered when purchasing is done. Storage of flammables and combustibles must be in compliance with *OSHA 29 CFR 1910.106*.

Surplus. Avoid the over purchase of products. Surplus products remain in the field, and may create a disposal or use problem for the field office that receives them. Any products left behind after an incident must be properly labeled and be accompanied by the appropriate MSDS.

Classification. NFPA 704 HazMat Classification descriptions can be found in the *Incident Response Pocket Guide (PMS 461, NFES 1077)*.

See Chapter 11 for additional information on responding to HazMat incidents.

Heat Stress

There are three forms of heat stress. The mildest is heat cramps. Heat stress can progress to heat exhaustion and eventually heat stroke. Heat stroke is a medical emergency! Delayed treatment can result in brain damage and even death. At the first sign of heat stress, stop work, get into the shade, and begin drinking fluid. See Chapter 5 of *Fitness and Work Capacity, 2nd ed.* (1997).

Smoke and Carbon Monoxide

For information of this subject call USDA Forest Service, Technology and Development Program, Publications, (406) 329-3978, and ask for *Health Hazards of Smoke, Recommendations of the Consensus Conference*, April 1997 (item Number 97512836). Copies are available free of charge in limited numbers.

“Six Minutes for Safety” Training

It is recommended that daily “Six Minutes for Safety” training be conducted that focuses on high-risk, low frequency activities that fire personnel may encounter during a fire season.

A daily national “Six Minutes for Safety” briefing can be found at www.nifc.gov and in the National Situation Report.

Snag Safety

Snags are a major hazard for firefighters on fireline.

Environmental conditions that increase snag hazards:

- Strong Winds
- Night Operations
- Steep slopes
- Diseased or bug-kill areas

Hazard tree indicators:

- Trees have been burning for an extended period
- High risk tree species (rot and shallow root system)
- Numerous down trees
- Dead or broken tops and limbs overhead
- Accumulation of down limbs
- Absence of needles, bark or limbs
- Leaning or hung-up trees

Safety for Non-Operational Personnel Visiting Fires

A wide variety of personnel such as agency administrators, other agency personnel, dignitaries, members of the news media, etc may visit incidents. The following standards apply to all visitors.

Visit to Incident Base

The minimum recommendation for PPE at an incident base is the same as all field locations.

- Lace-up shoes with non-slip soles and heels
- long trousers
- long-sleeve shirt

BLM – Refer to BLM Handbook 1112-2, 3.3 BLM requires 6-8” shoes.

For agency personnel, the field uniform is excellent; however for more flexibility the aramid fire shirts and trousers or flight suit may be worn.

Visits to Fireline

Visits to the fireline must have the approval of the IC. Visitors must maintain communications with the appropriate fireline supervisor of the area they are visiting. When visiting the fireline, there are two major considerations: required PPE, and the required physical fitness and training requirements, which vary based on whether or not the visitor is escorted or unescorted. Escorts must be qualified at the Single Resource Boss level.

PPE Required:

- 8-inch high, lace-type work boots with non-slip (Vibram type), melt-resistant soles and heels
- aramid shirts
- aramid trousers

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- hard hat with chinstrap
- leather gloves
- fire shelter
- hand tool
- water canteen
- personal first-aid kit.

Training and Physical Fitness Requirements

If escorted: Visitors must receive training in the proper use of PPE. Visitors must be able to walk in mountainous terrain and be in good physical condition with no known limiting conditions. Non-incident personnel must be escorted while on the fireline.

If unescorted: Non-incident personnel are required to have a fitness level of light, plus successful completion of the following:

- Introduction to Fire Behavior (S-190)
- Firefighter Training (S-130)
- Standards for Survival (S-132)
- Annual Fire Safety Refresher Training.

Helicopter Observation Flights

Visitors who take helicopter flights to observe fires must receive a passenger briefing and wear the following required PPE:

- flight helmet
- leather boots
- fire-resistant clothing
- all leather or leather and aramid gloves

Training Requirements. For agency personnel, training requirements can be met by any of the following courses: A-101 Aviation Safety, S-270 Basic Air Operations or S-271 Interagency Helicopter Training. Occasional passengers/visitors have no training requirement, but a qualified flight manager must supervise loading and unloading of passengers.

Fixed-Wing Observation Flights

No PPE is required for visitors and agency personnel who take fixed-wing flights to observe fires; however, a passenger briefing is required, and the flight level must not drop below 500 feet AGL.

Training Requirements. For agency personnel, training requirements can be met by any of the following courses: A-101 Aviation Safety or S-270 Basic Air Operations.

SAFENET

The NWCG has adopted a common reporting form and system to report unsafe situations or close calls in wildland and prescribed fire operations, all-risk incidents, and training events. SAFENET is the “SAFECOM” for on-the-ground fire incidents. SAFENET denotes “safety and health network in fire operations.”

The objectives of the form and process are:

- To provide immediate reporting and correction of unsafe situations or close calls in wildland fire.
- To provide a means of sharing safety information throughout the fire community.
- To provide long-term data that will assist in identifying trends.
- Primarily intended for wildland and prescribed fire situations; however, SAFENET can be used for training and all-risk events.

Individuals who observe or who are involved in an unsafe situation shall initiate corrective actions, if possible, and then report the occurrence immediately using SAFENET. You are encouraged, but not required, to put your name on the report.

If you are not in a position to take corrective action, the report shall be forwarded to the immediate supervisor (whose responsibility it is to resolve the situation) or to the next level supervisor who can mitigate the unsafe situation.

Anyone receiving a SAFENET is responsible for initiating action to correct the unsafe situation. Completed reports shall be forwarded to the state/regional level fire manager within seven (7) days, and to the national center within 30 days. There is no punishment or penalty for filing a SAFENET. SAFENET submissions may be done anonymously; however, this may delay corrective action.

Prompt replies to the originator (if name provided), timely action to correct problem, and discussion of filed SAFENETs at local level meetings encourage program participation and active reporting.

SAFENETs may be filed:

- electronically at www.nifc.gov, (click on the safety link and follow directions to SAFENET)
- postage paid mail-in form (PMS 405-2, NFES 2633)
- by phone-in at 1-888-670-3938

See the SAFENET form in **Appendix F**. SAFENET does not replace agency accident reporting criteria.

Accident/Injury Reporting

The Occupational Safety and Health Administration (OSHA) mandates that all accidents and injuries be reported in a timely manner. This is important for the following reasons:

- To protect and compensate employees for incidents that occur on-the-job;
- To assist supervisors and safety managers in taking corrective actions and establish safer work procedures;
- To determine if administrative controls or personal protective equipment are needed to prevent a future incident of the same or similar type;
- To provide a means for trend analysis.

All DOI agency accidents and injuries must be reported and entered in the DOI Safety Management Information System (SMIS) at www.smis.doi.gov within 72 hours. This is the official reporting system. Reporting is the responsibility of the injured employee's home unit regardless of where the accident or injury occurred.

Coordinate with your human resources office or administrative personnel to complete appropriate Officer of Worker's Compensation (OWCP) forms.

USFS – The Forest Service direction for accident/injury reporting is found in *FSM 6700* and *FSH 6709.11*.

Critical Incident Management

The National Wildfire Coordinating Group has published the *Agency Administrator's Guide to Critical Incident Management (PMS 926, NFES 1356)*. The guide is a series of subject-area checklists designed to be reviewed in detail before a critical incident occurs, during the actual management of the incident, and after the incident has taken place. It is a compilation of lessons learned and suggestions that are designed to assist an agency administrator in the management of a critical incident. The guide is not intended to replace local emergency plans or other specific guidance that may be available, but should be used in conjunction with existing SOPs. It is available through the Publications Management System, National Interagency Fire Center.