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Chapter 07 Safety and Risk Management

Introduction

The primary means by which we prevent accidents in wildland fire operations is through aggressive risk management. Our safety philosophy acknowledges that while the ideal level of risk may be zero, a hazard free work environment is not a reasonable or achievable goal in fire operations. Through organized, comprehensive, and systematic risk management, we will determine the acceptable level of risk that allows us to provide for safety yet still achieve fire operations objectives. Risk management is intended to minimize the number of injuries or fatalities experienced by wildland firefighters.

Definitions

Safety - may be defined as a measure of the degree of freedom from risk or conditions that can cause death, physical harm, or equipment or property damage.

Risk Management - is defined as a continuous, five-step process that provides a systematic method for identifying and managing the risks associated with any operation.

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

Agency Specific Safety Policy Documents:

- **BLM** - *BLM Handbook 1112-1, 1112-2*
- **FWS** - *Service Manual 241 FW7, Firefighting*
- **NPS** - *DO-50 and RM-50 Loss Control Management Guideline*
- **FS** - *FSH-6709.11 Health and Safety Code Handbook*

Guiding Principles

The primary means by which we implement command decisions and maintain unity of action is through the use of common principles of operations. These principles guide our fundamental wildland fire management practices, behaviors, and customs, and are mutually understood at every level of command. They include Risk Management, Standard Firefighting Orders and Watch Out Situations, LCES and the Downhill Line Construction Checklist. These principles are fundamental to how we perform fire operations, and are intended to improve decision making and firefighter safety. They are not absolute rules. They require judgment in application.

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07-1

1 Goal

2 The goal of the fire safety program is to provide direction and guidance for safe
3 and effective management in all activities. Safety is the responsibility of
4 everyone assigned to wildland fire, and must be practiced at all operational
5 levels from the national fire director, state/regional director, and unit manager -
6 to employees in the field. Agency administrators need to stress that firefighter
7 and public safety always takes precedence over property and resource loss.
8 Coordination between the fire management staff and unit safety officer(s) is
9 essential in achieving this objective. For additional safety guidance and
10 reference refer to:

- 11 • *Fireline Handbook (PMS 410-1, NFES 0065).*
- 12 • *Incident Response Pocket Guide (IRPG) (PMS 461, NFES 1077).*
- 13 • *Wildland Firefighter Health & Safety Report (Annual MTDC Publication).*
- 14 • *National Interagency Mobilization Guide (NFES 2092).*

16 Risk Management Process

17 The Risk Management Process identified in the *NWCG Incident Response*
18 *Pocket Guide (IRPG)* helps ensure that critical factors and risks associated with
19 fireline operations are considered during decision making. This process
20 enhances safety practices when applied to fire operations prior to taking action.
21 The Risk Management Process is found on the inside of the back cover of
22 *Interagency Standards for Fire and Fire Aviation Operations.*

24 Job Hazard Analysis (JHA)/ Risk Assessment (RA)

25 A completed Job Hazard Analysis is required for:

- 26 • Jobs or work practices that have potential hazards.
- 27 • New, non-routine, or hazardous tasks to be performed where potential
28 hazards exist.
- 29 • Jobs that may require the employee to use non-standard personal protective
30 equipment (PPE).
- 31 • Changes in equipment, work environment, conditions, policies, or materials.
- 32 • Supervisors and appropriate line managers must ensure that established
33 JHAs are reviewed and signed prior to any non-routine task or at the
34 beginning of the fire season.
- 35 • **BLM** - *A risk assessment (in lieu of JHA) must be completed for all non-*
36 *suppression work practices/projects that have potential hazards. Risk*
37 *assessments may be developed for wildland fire operational activities at the*
38 *local unit's discretion. Additional RA information can be obtained at:*
39 <http://web.blm.gov/internal/wo-700/wo740/riskmanagement.html>
40 <http://web.blm.gov/internal/wo-700/wo740/tools/RAWorksheets/>
41 [RAWorksheet_Library.html](http://web.blm.gov/internal/wo-700/wo740/tools/RAWorksheets/RAWorksheet_Library.html)

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1 Work/Rest

2 To assist in mitigating fatigue, days off are allowed during and after
3 assignments. If necessary to reduce fatigue, the Type 1 or 2 Incident
4 Commander (IC) or Agency Administrator (AA) (incident host or home unit)
5 may provide time off supplementary to mandatory days off requirements. For
6 Type 3-5 incidents, paid days off should be rare exceptions. However, if
7 necessary, the agency administrator (incident host or home unit) may authorize
8 day(s) off with pay.

9
10 The IC or AA authority to grant a day off with pay lies within 5 U.S.C. 6104, 5
11 CFR 610.301-306, and 56 Comp. Gen. Decision 393 (1977).

- 12 • Plan for and ensure that all personnel are provided a minimum 2:1 work to
13 rest ratio (for every 2 hours of work or travel, provide 1 hour of sleep and/or
14 rest).
- 15 • Work shifts that exceed 16 hours and/or consecutive days that do not meet
16 the 2:1 work/rest ratio should be the exception, and no work shift should
17 exceed 24 hours. However, in situations where this does occur (for
18 example, initial attack), incident management personnel will resume 2:1
19 work/rest ratio as quickly as possible.
- 20 • The Incident Commander or agency administrator must justify work shifts
21 that exceed 16 hours and those that do not meet 2:1 work to rest ratio.
22 Justification will be documented in the daily incident records.
23 Documentation shall include mitigation measures used to reduce fatigue.
- 24 • The Time Officer's/Unit Leader's approval of the Emergency Firefighter
25 Time Report (OF-288), or other agency pay document, certifies that the
26 required documentation is on file and no further documentation is required
27 for pay purposes.

28
29 The work/rest guidelines do not apply to aircraft pilots assigned to an incident.
30 Pilots must abide by applicable Federal Aviation Administration (FAA)
31 guidelines, or agency policy if more restrictive.

32 Length of Assignment**33 Assignment Definition**

34
35 An assignment is defined as the time period (days) between the first full
36 operational period at the first incident or reporting location on the original
37 resource order and commencement of return travel to the home unit.

38 Length of Assignment

39
40 Standard assignment length is 14 days, exclusive of travel from and to home
41 unit, with possible extensions identified below. Time spent in staging and
42 preposition status counts toward the 14-day limit, regardless of pay status, for all
43 personnel, including Incident Management Teams.

1 Days Off

2 After completion of a 14 day assignment and return to the home unit, two
3 mandatory days off will be provided (2 after 14). Days off must occur on the
4 calendar days immediately following the return travel in order to be charged to
5 the incident. (See Section 12.1-2) (5 U.S.C. 6104, 5 CFR 610.301-306, and 56
6 Comp. Gen. Decision 393 (1977)). If the next day(s) upon return from an
7 incident is/are a regular work day(s), a paid day(s) off will be authorized.
8 Regulations may preclude authorizing this for non-NWCG and state/local
9 employees.

10

11 Pay entitlement, including administrative leave, for a paid day(s) off cannot be
12 authorized on the individual's regular day(s) off at their home unit. Agencies
13 will apply holiday pay regulations, as appropriate. A paid day off is recorded on
14 home unit time records according to agency requirements. Casuals (AD) are not
15 entitled to paid day(s) off upon release from the incident or at their point of hire.

16

17 Contract resources are not entitled to paid day(s) off upon release from the
18 incident or at their point of hire.

19

20 Home unit agency administrators may authorize additional day(s) off with
21 compensation to further mitigate fatigue. If authorized, home unit program
22 funds will be used. All length of assignment rules apply to aviation resources,
23 including aircraft pilots, notwithstanding the FAA and Agency day off
24 regulations.

25

26 Assignment Extension

27 Prior to assigning incident personnel to back-to-back assignments, their health,
28 readiness, and capability must be considered. The health and safety of incident
29 personnel and resources will not be compromised under any circumstance.

30 • Assignments may be extended when:

- 31 • life and property are imminently threatened,
- 32 • suppression objectives are close to being met,
- 33 • a military battalion is assigned,
- 34 • replacement resources are unavailable, or have not yet arrived.

35

36 Upon completion of the standard 14 day assignment, an extension of up to an
37 additional 14 days may be allowed (for a total of up to 30 days, inclusive of
38 mandatory days off, and exclusive of travel). Regardless of extension duration,
39 two mandatory days off will be provided prior to the 22nd day of the assignment.

40

41 Contracts and Emergency Equipment Rental Agreements (EERA) should be
42 reviewed for appropriate pay requirements and length of assignment. If the
43 contract or EERA do not address this, the incident Finance/Administration
44 Section Chief or the procurement official should be consulted as to whether
45 compensation for a day off is appropriate.

46

1 **Single Resource/Kind Extensions**

2 The Section Chief or Incident Commander will identify the need for assignment
3 extension and will obtain the affected resource's concurrence. The Section
4 Chief and affected resource will acquire and document the home unit
5 supervisor's approval.

6

7 The Incident Commander approves the extension. If a convened geographic or
8 national multi-agency coordinating group (GMAC/NMAC) directs, the Incident
9 Commander approves only after GMAC/NMAC concurrence.

10

11 If the potential exists for reassignment to another incident during the extension,
12 the home unit supervisor and affected resource will be advised and must concur
13 prior to reassignment.

14

15 **Incident Management Team Extensions**

16 Incident management team extensions are to be negotiated between the incident
17 agency administrator, the Incident Commander, and the GMAC/NMAC (if
18 directed).

19

20 **Management Directed Days Off at Home Unit**

21 Supervisors must manage work schedules for initial attack, dispatch and incident
22 support personnel during extended incident situations. During periods of non-
23 routine or extended activity, these employees will have a minimum of 1 day off
24 in any 21-day period.

25

26 **Driving Standard**

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

30 Unauthorized use is prohibited.

31

32 **General Driving Policy**

- 33 • Employees must have a valid state driver's license in their possession for
34 the appropriate vehicle class before operating the vehicle. Operating a
35 government-owned or rental vehicle without a valid state driver's license is
36 prohibited.
- 37 • All drivers whose job duties require the use of a motor vehicle will receive
38 initial defensive driver training within three months of entering on duty and
39 refresher driver training every three years thereafter.
- 40 • The operator and all passengers are required to wear seat belts and obey all
41 federal and state laws.
- 42 • All traffic violations or parking tickets will be the operator's responsibility.
- 43 • All driving requiring a CDL will be performed in accordance with
44 applicable Department of Transportation regulations.
- 45 • Seat belts must be available and used in agency motor vehicles. Without
46 exception, seat belts must be worn at all times by motor vehicle operators

- 1 and passengers, regardless of the distance to be traveled or the time
2 involved. If any employee fails to fasten their seat belt while riding in a
3 vehicle on official business, they are subject to disciplinary action as
4 determined by local management.
- 5 • Employees operating any motor vehicle with a GVWR of 26,000 pounds or
6 more, towing a vehicle 10,000 pounds GVWR or more, hauling hazardous
7 material requiring the vehicle to be placarded, or transporting 16 or more
8 persons (including the driver) must possess a valid Commercial Drivers
9 License (CDL) with all applicable endorsements.
 - 10 • **BLM** - *All employees operating a Government motor vehicle will be*
11 *required to submit Form DI-131 (Application for U.S. Government Motor*
12 *Vehicle Operator's Identification Card) and OF-345 (Physical Fitness*
13 *Inquiry for Motor Vehicle Operators). When the supervisor signs the DI-*
14 *131, the employee is authorized to operate Government-owned or leased*
15 *vehicles, or privately-owned vehicles on official business. Individual office*
16 *forms equivalent to the OF-345 and DI-131 are acceptable.*
 - 17 • **FS** - *Policy requires all operators of government owned, or leased vehicles*
18 *to have a Forest Service issued identification card indicating the type of*
19 *vehicles or equipment the holder is authorized and qualified to operate.*
 - 20 • **BLM/FWS/NPS** - *The DOI has granted wildland fire agencies a waiver to*
21 *allow employees between the ages of 18 and 21 to operate agency*
22 *commercial fire vehicles using a state issued CDL under the specific*
23 *conditions as stated below:*
 - 24 • Drivers with a CDL may only drive within the state that has issued the
25 CDL and must comply with the state's special requirements and
26 endorsements.
 - 27 • These drivers must only drive vehicles that are equipped with visible
28 and audible signals, and are easily recognized as fire fighting
29 equipment. This excludes, but is not limited to, school buses used for
30 crew transport and "low-boy" tractor trailers used for construction
31 equipment transport.
 - 32 • Supervisors must annually establish and document that these drivers
33 have a valid license (i.e. that the license has not been suspended,
34 revoked, canceled, or that the employee has not been otherwise
35 unqualified from holding a license - 485 DM 16.3.B (1), ensure that
36 the employee has the ability to operate the vehicle(s) safely in the
37 operational environment assigned (485 DM 16.3.B (2), and review and
38 validate the employee's driving record (485 DM 16.3.B(4)).

40 **Non-Incident Operations Driving**

41 Refer to the current Driving Standards for each individual agency.

42

43 **Incident Operations Driving**

44 This policy addresses driving by personnel actively engaged in wildland fire
45 suppression or all-risk activities; these include driving while assigned to a

- 1 specific incident (check-in to check-out) or during initial attack fire response
2 (includes time required to control the fire and travel to a rest location).
- 3 • Agency resources assigned to an incident or engaged in initial attack fire
4 response will adhere to the current agency work/rest policy for determining
5 length of duty day.
 - 6 • No driver will drive more than 10 hours (behind the wheel) within any duty-
7 day.
 - 8 • Multiple drivers in a single vehicle may drive up to the duty-day limitation
9 provided no driver exceeds the individual driving (behind the wheel) time
10 limitation of 10 hours.
 - 11 • A driver shall drive only if they have had at least 8 consecutive hours off
12 duty before beginning a shift. Exception to the minimum off-duty hour
13 requirement is allowed when essential to:
 - 14 • Accomplish immediate and critical suppression objectives.
 - 15 • Address immediate and critical firefighter or public safety issues.
 - 16 • As stated in the current agency work/rest policy, documentation of
17 mitigation measures used to reduce fatigue is required for drivers who
18 exceed 16 hour work shifts. This is required regardless of whether the
19 driver was still compliant with the 10 hour individual (behind the wheel)
20 driving time limitations.
 - 21 • To manage fatigue, every effort should be made to avoid off unit (excluding
22 IA response) mobilization and demobilization travel between 2200 hrs and
23 0500 hrs.
 - 24 • *FWS/NPS - Program funds are authorized to pay for the cost of CDL*
25 *licensing fees and exams, necessary for employees to operate fire*
26 *equipment, with one exception. That exception involves those cases where a*
27 *test has been failed and must be retaken, in which case the employee will be*
28 *responsible for costs associated with additional testing.*

30 **Fire Vehicle Operation Standards**

31 Operators of all vehicles must abide by state traffic regulations. Operation of all
32 vehicles will be conducted within the limits specified by the manufacturer.
33 Limitations based on tire maximum speed ratings and Gross Vehicle Weight
34 restrictions must be followed. It is the vehicle operator's responsibility to
35 ensure vehicles abide by these and any other limitations specified by agency or
36 state regulations.

38 **Personal Protective Equipment (PPE)**

39 All personnel are required to use Personal Protective Equipment (PPE)
40 appropriate for their duties and/or as identified in JHAs/RAs. Employees must
41 be trained to use safety equipment effectively. PPE devices will be used only
42 when equipment guards, engineering controls, or management control do not
43 adequately protect employees.

1

2 **Required Fireline PPE includes:**

- 3 • Wildland fire boots
- 4 • fire shelter
- 5 • hard hat with chinstrap
- 6 • goggles/safety glasses as identified by JHAs/RAs)
- 7 • ear plugs/hearing protection
- 8 • yellow aramid shirts
- 9 • aramid trousers
- 10 • leather gloves
- 11 • Wear additional PPE as identified by local conditions, material safety data
- 12 sheet (MSDS), or JHA/RA.

13

14 Polyester, polypropylene, nylon, materials are not to be worn, as they melt and
15 stick to the skin when exposed to flame or heat. Because most synthetic fibers
16 melt when exposed to flame or extreme radiant heat, personnel should wear only
17 undergarments made of 100 percent natural fibers aramid, or other fire resistant
18 materials.

19

20 Aramid clothing should be cleaned or replaced whenever soiled, especially
21 when soiled with petroleum products. Aramid clothing will be replaced when
22 the fabric is so worn as to reduce the protection capability of the garment or is so
23 faded as to significantly reduce the desired visibility qualities.

24

25 Any modification to personal protective equipment that reduces its protection
26 capability such as iron-on logos, and sagging of pants, is an unacceptable
27 practice and will not be allowed on fires.

28

29 **Head Protection**

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

33

34 Acceptable hardhats for fireline use are "Helmet, Safety, Plastic" (NFES #0109,
35 NSN 8415-01-055-2265) listed in *NWCG National Fire Equipment System*
36 *Catalog: Fire Supplies and Equipment*, or equivalent hardhat meeting the
37 *National Fire Protection Association (NFPA) Standard 1977, Standard on*
38 *Protective Clothing and Equipment for use in Wildland Firefighting*.

39

40 Hard hats consist of two components - the shell and the suspension - which work
41 together as a system. Alteration of either of these components compromises the
42 effectiveness of the system (e.g. wearing hardhat backwards) and is not allowed.
43 Both components require periodic inspection and maintenance. Specific
44 inspection and maintenance instructions are found in Missoula Technology and

1 Development Center (MTDC) Tech Tip publication, *Your Hardhat: Inspection*
2 *and Maintenance* (0267-2331-MTDC). www.fs.fed.us/eng/t-d.php

3 **Eye and Face Protection**

4 The following positions require the wearing of eye protection (meets ANSI
5 Z87.1 Standards):

- 6 • nozzle operator
- 7 • chainsaw operator/faller
- 8 • helibase and ramp personnel
- 9 • wildland fire chemical mixing personnel
- 10 • other duties may require eye protection as identified in a specific JHA/RA.

11

12 Full face protection in the form of a face shield in compliance with ANSI Z87.1
13 shall be worn when working in any position where face protection has been
14 identified as required in the job specific JHA/RA: Batch Mixing for Terra-
15 Torch®, power sharpener operators, etc.

16

17 **Hearing Protection**

18 Personnel who are exposed to a noise level in excess of 85db must be provided
19 with, and wear, hearing protection. This includes, but is not limited to:

- 20 • Chainsaw operators/fallers.
- 21 • Pump operators.
- 22 • Helibase and aircraft ramp personnel.
- 23 • Wildland fire chemical mixing personnel.
- 24 • Any other personnel exposed on a regular basis to damaging noise levels.

25

26 Other duties may require hearing protection as identified in a specific JHA /RA.

27

28 Employees may be required to be placed under a hearing conservation program
29 as required by *29 CFR 1910.95*. Employees may be placed under a hearing
30 conservation program as identified in approved Medical Standards Program
31 waivers with restrictions. Consult with local safety & health personnel for
32 specifics regarding unit hearing conservation program.

33

34 **Neck Protection**

35 Face and neck shrouds are not required PPE. However, if used, face and neck
36 shrouds shall meet the requirements of FS specification 5100-601 or *NFPA*
37 *1977 Standard on Protective Clothing and Equipment for Wildland Fire*
38 *Fighting*.

39

40 Shrouds should be positioned in a manner that allows for immediate use. For
41 additional information see MTDC Tech Tip *Improved Face and Neck Shroud*
42 *for Wildland Firefighters, 2004* (0451-2323-MTDC).

43 <http://www.nifc.gov/wfstar/index.htm>.

44

1 The use of shrouds is not required and should be as a result of onsite risk
2 analysis.

3

4 **Leg Protection**

5 All chainsaw operators will wear chainsaw chaps meeting the NFPA 1977
6 *Standards Protective Clothing and Equipment for Wildland Firefighting*, or the
7 FS 6170-4 specification. Chainsaw chaps shall be maintained in accordance
8 with MTDC Publication, *Inspecting and Repairing Your Chainsaw Chaps -*
9 *User Instructions* (0567-2816-MTDC). <http://www.nifc.gov/wfstar/index.htm>.

10

11 **Wildland Fire Boot Standard**

12 Personnel assigned to wildland fires must wear a minimum of 8-inch high, lace-
13 type exterior leather work boots with Vibram-type, melt-resistant soles. The 8-
14 inch height requirement is measured from the bottom of the heel to the top of the
15 boot. Alaska is exempt from the Vibram-type sole requirement. All boots that
16 meet the footwear standard as described above are authorized for firefighting.

17

18 The boots are a condition of employment for firefighting positions and are
19 purchased by the employee prior to employment.

- 20 • *FWS - Red carded fireline permanent, temporary and seasonal Fish and*
21 *Wildlife personnel will be provided with these boots from station funds not*
22 *more often than every three years. Emergency or casual firefighters will*
23 *provide their own boots. Some refuge situations may require special*
24 *footwear such as waders, hip boots, snake boots, etc.*
- 25 • *NPS - Government funds will be utilized for purchase of wildland fire boots*
26 *for those employees currently red carded/certified in positions which*
27 *require wildland and prescribed fireline duties. The individual employee*
28 *must be available to perform those duties when assigned; if not routinely*
29 *available for park fire assignments, FIREPRO funds should not be used to*
30 *purchase boots for that employee.*
- 31 • *NPS - FIREPRO funds, not to exceed \$100 a pair, may be used to purchase*
32 *or repair boots. Other government funds, such as from safety, protection or*
33 *maintenance accounts, may also be used for purchase or to augment*
34 *FIREPRO funds, dependent on local management direction. Costs to*
35 *repair boots not damaged on fire should be charged to other appropriate*
36 *accounts.*
- 37 • *NPS - It is the responsibility of the local FMO to determine those*
38 *employees requiring boots as personal protective equipment, and the*
39 *frequency of necessary replacement or repair. Boots will be considered*
40 *similar to uniform items and will not be subject to cache item return, due to*
41 *health, sanitation, and individual sizing considerations.*

42

43 **Respiratory Protection**

44 The use of respiratory protection (e.g., dust masks, half-mask respirators) must
45 be in compliance with agency safety and health regulations and OSHA's
46 *Respiratory Protection Standard 29 CFR 1910.134.*

- 1 • *BLM/FWS/NPS - Managers and supervisors will not knowingly place*
2 *wildland firefighters in positions where exposure to noxious gases or*
3 *chemicals would require the use of self-contained breathing apparatus.*
- 4 • *FS - FSM - 5135.3 - Self-Contained Breathing Apparatus - Wildland*
5 *firefighters may use only an open-circuit, self-contained breathing*
6 *apparatus (SCBA) of the positive pressure type when smoke from vehicle,*
7 *dump, structure, or other non-wildland fuel fire cannot be avoided while*
8 *meeting wildland fire suppression objectives (29 CFR 1910.134,*
9 *Respiratory Protection). If such an apparatus is not available, avoid*
10 *exposure to smoke from these sources.*
- 11 • *FS - The acquisition, training, proper use, employee health surveillance*
12 *programs, inspection, storage, and maintenance of an SCBA must comply*
13 *with the National Fire Protection Association Standard, NFPA-1981 and 29*
14 *CFR 1910.134I, and be justified by a Job Hazard Analysis. Where an*
15 *SCBA is approved, it may be carried only on a fire engine and its use must*
16 *be consistent with FSM 5130.2 and FSM 5130.3.*

17 **Fire Shelters**

18 Fire shelters will be issued and carried in a readily accessible manner by all line
19 personnel. Firefighters will inspect their fire shelters at the beginning of each
20 fire season and periodically throughout the year, to ensure they are serviceable.
21 New Generation fire shelters will replace existing stock of old fire shelters by
22 the end of calendar year 2008 for all federal wildland firefighters and by the end
23 of calendar year 2009 for all other firefighters. New Generation fire shelters
24 will replace existing stock of old fire shelters for all fireline operations by
25 January 1, 2010. For more information refer to
26 http://www.nifc.gov/safety/fire_shelter.htm.

27
28
29 Training in the deployment of new generation fire shelters will be provided prior
30 to issuance.

31
32 Training Shelters will be deployed at required Annual Fireline Safety Refresher
33 Training. No live fire exercises for the purpose of fire shelter deployment
34 training will be conducted.

35
36 The deployment of shelters is to be viewed as a last resort, and will not be used
37 as a tactical tool. Supervisors and firefighters must never rely on fire shelters
38 instead of using well-defined escape routes and safety zones. When deployed
39 on a fire, fire shelters will be left in place if it is safe to do so and not be
40 removed pending approval of authorized investigators.

41 **Specialized or Non Standard PPE**

42 Specialized Personal Protective Equipment not routinely supplied by the agency
43 required to perform a task safely must be ordered in accordance with agency
44 direction.

45
46

1 A JHA/risk assessment must be completed and reviewed by the Unit Safety
2 Officer and the supervisor's approval is required. Items must meet agency and
3 industry standards for specific intended use. Cold weather flame resistant outer
4 wear shall be in compliance with NFPA 1977, *Standard on Protective Clothing
5 and Equipment for Wildland Firefighting*. All cold weather inner wear should
6 be composed of 100% natural fibers or of aramid and other flame resistant
7 materials.

8

9 **Fireline Safety**

10

11 **Incident Briefings**

12 Fire managers must ensure that safety briefings are occurring throughout the fire
13 organization, and that safety factors are addressed through the IC or their
14 designee and communicated to all incident personnel at operational briefings.
15 The identification and location of escape routes and safety zones must be
16 stressed. A briefing checklist can be found in the *Incident Response Pocket
17 Guide (IRPG)*.

18

19 **LCES - A System for Operational Safety**

20 LCES will be used in all operational briefings and tactical operations as per the
21 *Incident Response Pocket Guide (IRPG)*.

- 22 • L - Lookout(s)
- 23 • C - Communication(s)
- 24 • E - Escape Route(s)
- 25 • S - Safety Zone(s)

26

27 **Incident Safety Oversight**

28 Agency administrators must be actively involved in the management of wildland
29 fires, and personally visit an appropriate number of escaped fires each year.

30

31 Agency Administrators and/or Fire Managers may request additional safety
32 oversight when:

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

37

38 Every individual has the right to turn down unsafe assignments. When an
39 individual feels an assignment is unsafe they also have the obligation to identify,
40 to the degree possible, safety alternatives for completing that assignment. The
41 IRPG contains process for How to Properly Refuse Risk.

42

43 **Location of Fire Camps and Plans to Remain in Place**

44 Fire camps should be located in areas that will service the incident for the long
45 term without having to relocate. It is recognized that such factors as

1 accessibility to the incident, size of the area required and cost efficiency play
2 key roles in determining locations.

3

4 Due to such factors as extreme fire behaviors, fire camp locations might be
5 compromised. Incident Commanders are to be especially vigilant to quickly
6 identify situations that may put their fire camp(s) or any other adjacent fire
7 camps in jeopardy. As such, planning for evacuation and/ or remain in place
8 actions should be considered. Evacuation plans at a minimum shall include:

- 9 • Documented risk assessment
- 10 • Trigger points
- 11 • Egress routes
- 12 • Transportation for all personnel
- 13 • Accountability for all personnel
- 14 • *FS - Plans, at a minimum shall include:*
 - 15 • *Documented risk assessment*
 - 16 • *Trigger points*
 - 17 • *ICP protection strategy referenced in the IAP*
 - 18 • *Live-ability considerations including air quality, functionality of*
19 *location and facilities, and safety factors for post burn conditions.*
 - 20 • *Those individuals not meeting 310-1 qualifications will be considered*
21 *escorted visitors addressed elsewhere in this chapter.*

22

23 **Standard Safety Flagging**

24 The NWCG recommends the following Safety Zone/Escape Route flagging for
25 wildland fire activities:

- 26 • Hot-pink flagging marked “Escape Route” (NFES 0566). Crews with
27 colorblind members may wish to carry and utilize fluorescent chartreuse
28 flagging (NFES #2396).
- 29 • Hazards. Yellow with black diagonal stripes, 1 inch wide (NFES 0267). If
30 the above recommendation is not utilized on an incident, the incident will
31 need to identify the selected color and it make known to all firefighters.

32

33 **Unexploded Ordnance**

34 General guidance is as follows: If Unexploded Ordnance (UXO) is suspected,
35 do not enter the area. Small arms (rifle and shotgun) munitions areas should be
36 flagged and avoided by fire personnel. For suspected larger munitions, the area
37 must be avoided by fire personnel and contact local law enforcement bomb
38 squad or nearest Department of Defense agency. Each unit will determine
39 which employees are authorized to enter known or potential hazardous
40 substance release sites, and the responsibility for these determinations remains
41 with each agency administrator. For additional UXO safety information, see
42 current IRPG.

43

44 **Hazardous Materials**

1 Employees that discover any unauthorized waste dump or spill site that contains
2 indicators of potential hazardous substances (e.g, containers of unknown
3 substances, pools of unidentifiable liquids, piles of unknown solid materials,
4 unusual odors, or any materials out of place or not associated with an authorized
5 activity) should take the following precautions:

6 Follow the procedures in the IRPG.

- 7 • Treat each site as if it contains harmful materials.
- 8 • Do not handle, move, or open any container, breathe vapors, or make
9 contact with the material.
- 10 • Move a safe distance upwind from the site.
- 11 • Contact appropriate personnel. Generally, this is the Hazardous Materials
12 Coordinator for the local office.
- 13 • *BLM/FWS/NPS - Agencies require that all field personnel complete a First
14 Responder Awareness training. Firefighters are required to take an annual
15 refresher for Hazardous Material protocol.*

16
17 The following general safety rules shall be observed when working with
18 chemicals:

- 19 • Read and understand the Material Safety Data Sheets.
- 20 • Keep the work area clean and orderly.
- 21 • Use the necessary safety equipment.
- 22 • Label every container with the identity of its contents and appropriate
23 hazard warnings.
- 24 • Store incompatible chemicals in separate areas.
- 25 • Substitute less toxic materials whenever possible.
- 26 • Limit the volume of volatile or flammable material to the minimum needed
27 for short operation periods.
- 28 • Provide means of containing the material if equipment or containers should
29 break or spill their contents.

30 **Responding to Wildland Fires in or near Oil/Gas Operations**

31 Oil/gas production across the United States has increased dramatically. This has
32 impacted wildland fire suppression operations and can expose firefighters to
33 safety and health hazards. For those offices with oil and gas operations within
34 their fire suppression jurisdiction, the following is the minimum standard
35 operating procedures to help ensure the health and safety of wildland
36 firefighters:

- 37 • Firefighters shall receive annual oil and gas hazard recognition and
38 mitigation training.
- 39 • Local unit shall complete a JHA/RA for wildland fire suppression activities
40 in oil and gas areas and provide a copy with a briefing to all local and
41 incoming resources. See WFSTAR website for example of a RA.
42 <http://www.nifc.gov/wfstar/index.htm>.
- 43 • Establish Response Protocols which includes notification procedures to
44 respective oil and gas company(s).

- 1 • Ensure oil and gas resource advisors are assigned.
- 2 • Ensure that at least one member of each squad or engine crew is
3 knowledgeable in the use and data interpretation of the Hydrogen Sulfide
4 gas monitor. Training on the device will include at a minimum:
 - 5 • Equipment charging and maintenance of sensors
 - 6 • Startup, zeroing, calibration and bump testing procedures as
7 recommended by the manufacturer.
 - 8 • How the monitor elicits a warning alarm (visual, auditory, vibration)
 - 9 • Understand Peak Reading, Short Term Exposure Limits (STEL), and
10 Time Weighted Averages.
 - 11 • Understand how to set the monitors alarm threshold.
- 12 • The monitor's alarm shall be set at the current American Conference on
13 Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (10
14 PPM 2008) and STEL (15 PPM 2008).
- 15 • If hydrogen sulfide gas (H₂S) is encountered, immediately disengage and
16 leave area.
- 17 • Firefighters need to immediately report H₂S or potential exposure and seek
18 immediate medical care.
- 19 • Do not establish incident base camps or staging areas in or near oil and gas
20 operations.

21
22 The following websites provide additional information and training recourses:

- 23 • http://gacc.nifc.gov/rmcc/dispatch_centers/r2drc/Handbook_Oil_&_Gas_Well.pdf
- 24
- 25 • <http://iirdb.wildfirelessons.net/main/Reviews.aspx>
- 26 • http://wildfirelessons.net/documents/Final_Maverick_Lessons_Learned_Review.pdf
- 27
- 28 • http://www.nifc.gov/sixminutes/dsp_discussion.php?id=177
- 29 • http://www.nifc.gov/sixminutes/dsp_discussion.php?id=195
- 30

31 **Smoke and Carbon Monoxide**

32 Site specific hazards and mitigations need to be identified to reduce firefighter
33 exposure to smoke and potential carbon monoxide.

34 35 **Six Minutes for Safety Training**

36 It is recommended that daily "Six Minutes for Safety" training be conducted that
37 focuses on high-risk, low frequency activities that fire personnel may encounter
38 during a fire season. A daily national "Six Minutes for Safety" briefing can be
39 found at: http://www.nifc.gov/sixminutes/dsp_sixminutes.php or the National
40 Situation Report.

41

42 **Safety for Non-Operational Personnel Visiting Fires**

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

1

2 Visits to an Incident Base

3 Recommended PPE for visits to incident base camps and other non-fireline field
4 locations.

- 5 • Lace-up, closed toe shoes/boots with traction soles and ankle support.
- 6 • Long trousers.
- 7 • Long-sleeve shirt.
- 8 • For agency personnel, the field uniform is appropriate.

9

10 Visits to the Fireline/RX Burns

11 Visits to the fireline must have the approval of the IC/Burn Boss.

- 12 • Visitors must maintain communications with the DIVS or appropriate
13 fireline supervisor of the area they are visiting.
- 14 • Required PPE:
 - 15 • Wildland fire boots.
 - 16 • Yellow aramid shirts.
 - 17 • Aramid trousers.
 - 18 • Hard hat with chinstrap.
 - 19 • Leather gloves.
 - 20 • Fire shelter.
- 21 • Required equipment/supplies:
 - 22 • Hand tool.
 - 23 • Water canteen.

24

25 Visitors to the Fireline/RX Burns may be “Escorted” or “Non-Escorted”
26 depending on the following requirements:

27

28 Non-Escorted Visits

29 Visitors must have a minimum physical fitness level of “light”.

- 30 • Must have adequate communications and radio training.
- 31 • Completed the following training:
 - 32 • Introduction to Fire Behavior (S-190).
 - 33 • Firefighter Training (S-130).
 - 34 • Annual Fireline Safety Refresher Training.
- 35 • Deviation from this requirement must be approved by the IC for other non-
36 escorted support personnel involved in vehicle operations or other support
37 functions on established roadways and working in areas which pose no fire
38 behavior threat.
- 39 • *BLM/FWS - Law Enforcement physical fitness standard is accepted as*
40 *equivalent to a “light” WCT work category.*

41

42 Escorted Visits

43 All non-incident, non-agency, visitors lacking the above training and physical
44 requirements must be escorted while on the fireline.

- 45 • Visitors must receive training in the proper use of PPE.

- 1 • Requirement for handtool and water to be determined by escort.
- 2 • Visitors must be able to walk in mountainous terrain and be in good
- 3 physical condition with no known limiting conditions.
- 4 • Escorts must be minimally qualified at the Single Resource Boss. Any
- 5 deviation from this requirement must be approved by the IC.

6

7 **Helicopter Observation Flights**

8 Visitors who take helicopter flights to observe fires must receive a passenger
9 briefing and meet the following requirements:

- 10 • Required PPE:
 - 11 • Flight helmet
 - 12 • Leather boots
 - 13 • Fire-resistant clothing
 - 14 • All leather or leather and aramid gloves

15

16 Occasional passengers/visitors have no training requirement, but a qualified
17 flight manager must supervise loading and unloading of passengers.

18

19 **Fixed-Wing Observation Flights**

- 20 • Required PPE:
 - 21 • No PPE is required for visitors and agency personnel who take fixed-
 - 22 wing flights to observe fires. However, a passenger briefing is required,
 - 23 and the flight level must not drop below 500 feet AGL.

24

25 **SAFENET**

26 SAFENET is a form, process, and method for reporting and resolving safety
27 concerns encountered in any aspect (e.g., preparedness, training, etc.) of
28 wildland fire or all hazard incident management. The information provided on
29 the form will provide important, safety-related data to the National Interagency
30 Fire Center, and determine long-term trends and problem areas.

31 The objectives of the form and process are:

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

39

40 Individuals who observe or who are involved in an unsafe situation shall initiate
41 corrective actions if possible, and then report the occurrence using SAFENET.

42 You are encouraged, but not required, to put your name on the report.

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

1
2 SAFENET is not the only way to correct a safety-related concern and it does not
3 replace accident reporting or any other valid agency reporting method. It is an
4 efficient way to report a safety concern. It is also a way for front line
5 firefighters to be involved in the daily job of being safe and keeping others safe,
6 by documenting and helping to resolve safety issues. SAFENETs may be filed:
7 • electronically at <http://safenet.nifc.gov>
8 • verbally by telephone at 1-888-670-3938.

9
10

11 **Accident/Injury Reporting**

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

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

21

22 Employees are required to immediately report to their supervisor every job-
23 related accident. Managers and supervisors shall ensure that an appropriate
24 level of investigation is conducted for each accident and record all personal
25 injuries and property damage. Coordinate with your human resources office or
26 administrative personnel to complete appropriate Officer of Worker's
27 Compensation (OWCP) forms.

- 28 • Reporting is the responsibility of the injured employee's home unit
29 regardless of where the accident or injury occurred.
- 30 • DOI employees will report accidents using the Safety Management
31 Information System (SMIS) at <https://www.smis.doi.gov/>. Supervisors
32 shall complete SMIS report within six working days after the
33 accident/injury.
- 34 • Forest Service employees will use the Safety and Health Information Portal
35 System (SHIPS) through the Forest Service Dashboard.

36

37 **Required Treatment for Burn Injuries**

38 The following standards will be used when any firefighter sustains burn injuries,
39 regardless of agency jurisdiction.

40

41 After on-site medical response, initial medical stabilization, and evaluation are
42 completed; the agency administrator or designee having jurisdiction for the
43 incident and/or firefighter representative (e.g. Crew Boss, Medical Unit Leader,
44 Compensations for Injury Specialist, etc.) should coordinate with the attending
45 physician to ensure that a firefighter whose injuries meet any of the following

1 burn injury criteria is immediately referred to the nearest regional burn center. It
2 is imperative that action is expeditious, as burn injuries are often difficult to
3 evaluate and may take 72 hours to manifest themselves. These criteria are based
4 upon American Burn Association criteria as warranting immediate referral to an
5 accredited burn center.

6

7 The decision to refer the firefighter to a regional burn center is made directly by
8 the attending physician or may be requested of the physician by the agency
9 administrator or designee having jurisdiction and/or firefighter representative.

10

11 The agency administrator or designee for the incident will coordinate with the
12 employee's home unit to identify a Workers Compensation liaison to assist the
13 injured employee with workers compensation claims and procedures.

14

15 Workers Compensation benefits may be denied in the event that the attending
16 physician does not agree to refer the firefighter to a regional burn center. During
17 these rare events, close consultation must occur between the attending physician,
18 the firefighter, the agency administrator or designee and/or firefighter
19 representative, and the firefighter's physician to assure that the best possible
20 care for the burn injuries is provided.

21

22 **Burn Injury Criteria**

- 23 • Partial thickness burns (second degree) involving greater than 5% Total
24 Body Surface Area (TBSA).
- 25 • Burns (second degree) involving the face, hands, feet, genitalia, perineum,
26 or major joints.
- 27 • Third-degree burns of any size are present.
- 28 • Electrical burns, including lightning injury are present.
- 29 • Inhalation injury is suspected.
- 30 • Burns are accompanied by traumatic injury (such as fractures).
- 31 • Individuals are unable to immediately return to full duty.
- 32 • When there is any doubt as to the severity of the burn injury, the
33 recommended action should be to facilitate the immediate referral and
34 transport of the firefighter to the nearest burn center.

35

36 As list of possible burn care facilities can be found at:

37 <http://www.blm.gov/nifc/st/en/prog/fire/im.html>.

38

39 For additional NWCG incident emergency medical information see:

40 <http://www.nwcg.gov/teams/shwt/iemtg/index.html>.

41

42 **Critical Incident Management**

43 The National Wildfire Coordinating Group has published the *Agency*

44 *Administrator's Guide to Critical Incident Management* (PMS 926).

1 The guide is designed as a working tool to assist agency administrators with the
2 chronological steps in managing a critical incident. This document includes a
3 series of checklists which outlines agency administrators and other functional
4 area's oversight and responsibilities. The guide is not intended to replace local
5 emergency plans or other specific guidance that may be available, but should be
6 used in conjunction with existing SOPs. Local units should complete the guide
7 and review and update at least annually.
8 This guide is only available electronically at:
9 <http://www.nwcg.gov/pms/pubs/pubs.htm>.

10

11 **Critical Incident Stress Management (CISM)**

12 A critical incident may be defined as a fatality or other event that can have
13 serious long term affects on the agency, its employees and their families or the
14 community. Such an event may warrant stress management assistance. The
15 local agency administrator may choose to provide CISM for personnel having
16 been exposed to a traumatic event.

17

18 The availability of CISM teams and related resources (e.g. defusing teams)
19 varies constantly - it is imperative that local units pre-identify CISM resources
20 that can support local unit needs.

21

22 Some incident management teams have Human Resource Specialists (HRSP) on
23 their teams who may be able to assist local units with CISM needs.