

# 1 – Overview and Program Directives



## Introduction

### Scope

These standards apply to the Bureau of Land Management (BLM). They are designed to provide basic standards for safe, effective, and efficient fire operations. This document will be reviewed annually and updated as needed.

### Purpose

The purpose of this document is to provide current operational policies, procedures, and guidelines for the management of wildland fire.

### Overview

Safe, effective, and efficient wildland fire operations require a thorough understanding of many policies, principles, and procedures. Wildland fire operations also require a personal commitment to safety and excellence. This document provides a ready reference of policies, procedures, and guidelines necessary to enhance safe and effective wildland fire operations.

## Policy

The following policies are accepted and endorsed by the Secretaries of Agriculture and Interior. They provide consistent and compatible fire management practices among federal wildland fire management agencies, and guide BLM wildland fire operations.

### *Safety*

Firefighter and public safety is the first priority. All fire management plans and activities must reflect this commitment:

- All fire personnel will meet appropriate training, experience, and qualification requirements for incident assignments. (See NWCG 310 1 and DOI Incident Qualification and Certification System).

- All fire personnel will be equipped with approved personal protective equipment.
- All BLM personnel assigned to fireline duties will complete annual refresher training.
- All wildland fire entrapments and fatalities will be reported using current National Wildfire Coordinating Group (NWCG) initial entrapment/fatality Report form.
- All wildland fire serious accidents will be investigated using the interagency wildland fire serious accident investigation procedures.
- Follow all safety standards and guidelines identified within the *Interagency Incident Business Management Handbook*, *Fireline Handbook*, and those outlined in *BLM Standards for Fire Operations*.

### **Planning Policy**

Every area with burnable vegetation must have an approved fire management plan. Plans must address firefighter and public safety, values to be protected, and public health issues; and be consistent with land and resource management plans. Fire management plans must also address potential wildland fire occurrences and include the full range of fire management actions. Plans must also promote an interagency approach to managing fires on an ecosystem basis across agency boundaries.

- Until a fire management plan is approved, BLM units must take an aggressive suppression action on all wildland fires consistent with firefighter and public safety and resources to be protected.
- Without an approved fire management plan, resource benefits cannot be a primary consideration influencing selection of a management strategy although resource impacts of suppression alternatives can be considered in the decision.

### **Wildland Fire**

Fire, as a critical natural process, will be integrated into land and resource management plans and activities on a landscape scale, across agency boundaries, and will be based upon best available science. All use of fire for resource management requires a formal prescription. Management actions taken on wildland fires will be consistent with approved fire management plans.

### **Prevention**

BLM will work with other affected groups and individuals to prevent unauthorized ignition of wildland fires.

### **Fire Use**

Prescribed fire is used to alter, maintain, or restore vegetative communities, achieve potential future condition, and to protect life, property, and values that would be degraded by wildland fire.

- All prescribed fire projects will have a written and approved burn plan prior to ignition.
- All burn plans will contain measurable objectives, predetermined prescription, and a contingency plan to be implemented if the fire escapes.
- All prescribed fire projects will be in compliance with NEPA requirements.

### **Preparedness**

BLM managers will provide safe, cost-effective fire management programs in support of land and resource management plans through appropriate planning, staffing, training, and equipment.

- Preparedness planning must be accomplished annually at all organizational levels.
- When conditions exceed those of the normal fire year, severity planning must be developed considering agency and interagency needs on local, geographic, and national bases.
- Annual operating plans, and unit operating procedures will be updated annually.
- Preparedness reviews will be conducted annually to determine the level of preparedness.

### **Suppression**

Fires are suppressed at minimum cost, considering firefighter and public safety, benefits, and values to be protected, consistent with resource objectives.

- Fire management will be based on, firefighter and public safety, cost-effectiveness, benefits, and values to be protected, consistent with resource objectives by using the full range of strategic and tactical options as described in an approved fire management plan. Without an approved plan aggressive suppression action must be taken.
- All BLM units will utilize a decision making process that evaluates alternative management strategies against selected environmental, social, political, and economic criteria.

**Protection Priorities**

Protection priorities are: 1) human life, and 2) property and natural/cultural resources. If it becomes necessary to set priorities between property and natural/cultural resources, consider values to be protected and fire management costs. Once people have been committed to an incident, these resources become the highest value to be protected.

**Interagency Cooperation**

Fire management planning, preparedness, suppression, fire use, monitoring, and research will be conducted on an interagency basis with the involvement of all partners.

**Economic Efficiency**

Fire management programs and activities will be based on economic analyses that incorporate commodity, non-commodity, and social values.

**Wildland/Urban Interface**

The operational role of federal agencies as a partner in the wildland/urban interface is wildland firefighting, hazard fuels reduction, cooperative prevention and education, and technical assistance. Structural fire protection is the responsibility of tribal, state, and local governments. Federal agencies may assist with exterior structural suppression activities under formal fire protection agreements that specify the mutual responsibilities of the partners, including funding. (Some federal agencies have full structural protection authority for facilities on lands they administer and may also enter into formal agreements to assist state and local governments with full structural protection.)

**Administrator and Employee Roles**

Employees who are trained and certified participate in the wildland fire program as the situation demands; employees with operational, administrative, or other skills will support the wildland fire program as needed. Administrators are responsible and accountable for making employees available.

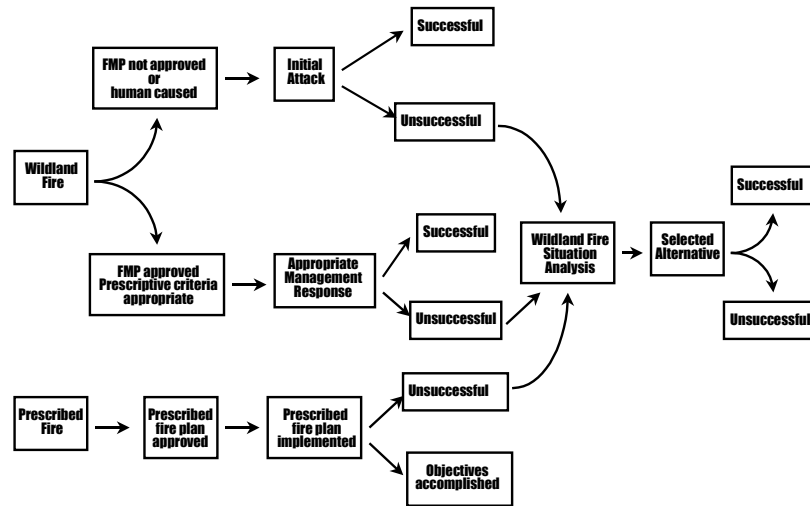
**Fire Investigation and Cost Recovery**

BLM policy requires all wildland fires to be investigated to determine cause, origin, and responsibility. The BLM must pursue cost recovery, or document why cost recovery is not initiated, for all human-caused fires on public and/or other lands under protection agreement.

## Wildland Fire Policy Requirements and Implementation Procedures

The Federal Wildland Fire Management Policy (December 1995) directs federal agencies to achieve a balance between suppression to protect life, property, and resources and fire use to regulate fuels and maintain healthy ecosystems. Most of the previous barriers and constraints to considering the benefits of fire and expanded fire use are removed through the policy.

The following NWCG flowchart represents the broad framework in which the new interagency policy will be implemented.



The flowchart defines all fires as either wildland or prescribed fires. Wildland fire management can follow one of two tracks, depending on the level of land management planning completed or the cause of the fire. Field offices without an approved fire management plan or having a human-caused wildland fire, have limited management options available to them. In these situations, units may only implement initial attack strategies. When the fire management plan has been completed and approved, and wildland fires are from natural ignition sources, the full extent of management options is available. These options range from monitoring with minimal on-the-ground actions to intense suppression actions on all or portions of the fire perimeter. The appropriate management response is

developed from analysis of the local situation, values to be protected, management objectives, external concerns, and land use.

## **Fire Policy Terminology**

### ***Definitions:***

**Wildland Fire** – Any non-structure fire, other than prescribed fire, that occurs in the wildland.

**Fire Management Plan** – A strategic plan that defines a program to manage wildland and prescribed fires. The fire management program objectives come from an approved land use plan, e.g., Resource Management Plan. The fire management plan is supplemented by operational plans such as preparedness, preplanned dispatch, prescribed fire, and prevention.

**Appropriate Management Response** – Specific actions taken in response to a wildland fire to implement protection and fire use objectives.

**Preparedness** – Activities that lead to safe, efficient, and cost effective fire management program in support of land and resource management objectives through appropriate planning and coordination.

**Prescribed Fire** – Any fire ignited by management actions to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

**Initial Attack** – An aggressive suppression action consistent with firefighter and public safety and values to be protected.

**Prescription** – Measurable criteria which guide selection of appropriate management response and actions. Prescription criteria may include safety, economic, public health, environmental, geographic, administrative, social, or legal considerations.

**Wildland Fire Situation Analysis (WFSA)** – A decision-making process that evaluates alternative management strategies against safety, environmental, social, economical, political, and resource management objectives as selected criteria.

## Fire Management Objectives

The objectives of the wildland fire management program are to:

- 1 Protect human life and property and natural/cultural resources both within and adjacent to Bureau-administered lands.
- 2 Minimize damages and maximize overall benefits of wildland fire within the framework of land use objectives and resource management plans.
- 3 Manage the wildland fire program in accordance with congressional intent as expressed in the annual appropriations acts and comply with applicable departmental manual and BLM policies and procedures.
- 4 Promote an interagency approach to managing fires on an ecosystem basis.
- 5 Employ strategies to manage wildland fires that provide for firefighter and public safety, minimize cost and resource damage, consistent with values to be protected and management objectives.
- 6 Prevent unplanned human-caused ignitions.
- 7 Restore and rehabilitate resources, and improvements lost in or damaged by fire or suppression activities.
- 8 Minimize and, where necessary, mitigate human-induced impacts to resources, natural processes, or improvements attributable to wildland fire activities.
- 9 Promote public understanding of fire management programs and objectives.
- 10 Organize and maintain a fire management capability which consistently applies the highest standards of professional and technical expertise.
- 11 Encourage research to advance understanding of fire behavior, effects, ecology, and management.
- 12 Integrate fire and management.
- 13 Investigate all human-caused fires.





## 2 – Program Roles & Performance Standards

### Agency Administrator's Roles

#### Director

The director of the BLM is responsible to the Secretary of the Interior for fire management programs on public lands administered by the BLM. The Office of Fire and Aviation is responsible to the director for policy formulation and program oversight. The director will meet the required elements outlined in the Fire Program Management and Accountability Matrix.

#### State Director

The state director is responsible to the director for fire management programs and activities within his/her state. The state director will meet the required elements outlined in the Fire Program Management and Accountability Matrix.

#### Field Office Manager

The field office manager is responsible to the state director for the safe, effective, and efficient implementation of all fire management activities within his/her unit, including cooperative activities with other agencies or landowners in accordance with delegations of authorities. The field office manager will meet the required elements outlined in the Fire Program Management Accountability Matrix.

#### Management Performance Requirements for Fire Operations

Performance Required	Directorate	State Director/ Associate	Field Office Manager
Ensure Fire Management Officers (FMOs) are fully qualified.	✓	✓	✓
Provide a written Delegation of Authority to FMOs that provides an adequate level of operational authority. Include Multi-agency Coordinating (MAC) Group authority.	✓	✓	✓
Identify fire management objectives, protection standards and suppression activity constraints to ensure they are in compliance with Department of the Interior (DOI) and BLM fire policies and they do not compromise firefighter or public safety.		✓	✓

Performance Required	Directorate	State Director/ Associate	Field Office Manager
Maintain a current fire management plan (FMP) which identifies an accurate and <b>defensible</b> most efficient level (MEL) of funding and personnel		✓	✓
Ensure use of fire funds is in compliance with DOI and BLM policy.	✓	✓	✓
Manage full-time equivalent (FTE) ceilings to ensure firefighter safety is not compromised.	✓	✓	✓
Include a review of fire and aviation policies and safety procedures during a management team meeting each year prior to fire season. Discussions should include specific issues that could compromise safety and effectiveness during the upcoming season.	✓	✓	✓
Ensure timely follow-up actions to program reviews, fire preparedness reviews, fire and aviation safety reviews, fire critiques and post-season reviews.	✓	✓	✓
At least once each year, meet with field fire and aviation personnel to review safety policies, procedures and concerns. Specifically address procedures to ensure oversight and management controls during critical transition periods.			✓
Ensure fire and aviation preparedness reviews are conducted in all field offices each year. <b>Personally</b> participate in at least one inspection, annually.		✓	✓
Ensure a written, approved burn plan exists for each prescribed fire project.		✓	✓
Ensure all escaped prescribed fires receive a review at the proper level.		✓	✓
Annually meet with major cooperators and review interagency agreements and memoranda of understanding (MOUs) to ensure their continued effectiveness and efficiency.		✓	✓
Ensure that a Wildland Fire Situation Analysis is completed and approved on all fires that escape initial attack.			✓
Personally visit an appropriate number of fires each year.			✓

Performance Required	Directorate	State Director/ Associate	Field Office Manager
Ensure fire reviews are conducted on escaped fires. Personally attend reviews on Type 1 and 2 fires.			✓
Maintain a daily awareness of fire activity, burning conditions and weather forecasts.		✓	✓
Assign a resource adviser to all escaped fires.			✓
Make non-fire personnel available to serve in fire or support roles.	✓	✓	✓
Participate in a post-season fire review or a fire preparedness meeting each year.		✓	✓

Reprinted from the Approved BLM Fire and Aviation Program-wide Review

## Fire Management

### National Office

The BLM's wildland fire management program will be coordinated by the Office of Fire and Aviation. Its bureau-wide function is to assist states and field offices to develop and implement a safe, effective, and efficient fire management program that meets management's objectives.

The Office of Fire and Aviation is located in Boise, Idaho at the National Interagency Fire Center (NIFC). The Office of Fire and Aviation works with interagency cooperators to coordinate, reduce duplication, and increase efficiencies in the management of wildland fire.

### State Office

The State Fire Management Officer (SFMO) is responsible for negotiating interagency agreements and providing planning, coordination, training, technical guidance, and evaluations to the field office fire management programs throughout the state. The SFMO also represents the state director on interagency geographic coordination groups and MAC groups.

### Field Office

The FMO is responsible for planning and implementing a safe, effective, and efficient fire management program. The FMOs coordinate with field managers to determine the level of program required to implement the land use decisions and to meet management objectives. They take appropriate action on all wildland fires occurring on or adjacent to national resource lands, apply fire to the

landscape to meet management objectives, and act to prevent or reduce the adverse impacts of wildland fires.

**Fire Management Staff Performance for Fire Operations**

	<b>Performance Required</b>	<b>D-F&amp;A</b>	<b>SFMO</b>	<b>FMO</b>
1	Create, instill, and maintain the operational doctrine of safety in all aspects of fire and aviation management.	✓	✓	✓
2	Ensure a hazard analysis for fire and aviation activities is completed and mitigation measures are taken to reduce risk to employees.			✓
3	Ensure work-rest and R&R guidelines are followed during large fire and initial attack operations for all personnel. Any deviations are approved and documented.		✓	✓
4	Ensure that only trained and fully qualified personnel are assigned to fire and aviation management duties.	✓	✓	✓
5	Analyze, develop, implement, and evaluate fire and aviation training program to meet current and anticipated needs.	✓	✓	✓
6	Establish an effective process to gather, evaluate, and communicate information to managers, supervisors, and employees that keeps them informed on issues, activities, and emergencies.	✓	✓	✓
7	Develop and maintain an open line of communication with publics and cooperators.	✓	✓	✓
8	Ensure that the fire and aviation management staff understands their role, responsibilities, authority, and accountability.	✓	✓	✓
9	Ensure new hires meet or exceed the Fire Management Positions Qualifications Standards. An Individual Development Plan must be provided for incumbents who do not meet the new standards.		✓	✓
10	Based on allocated funding level, ensure adequate resources are available to implement the Fire Management Plan (FMP). If not, make adjustments to provide the most efficient, effective, and safe fire protection and use program.		✓	✓

	Performance Required	D-F&A	SFMO	FMO
11	Organize, train, equip, and direct the most qualified work force possible to ensure safe, effective, and efficient fire and aviation activities.	✓	✓	✓
12	Ensure BLM and DOI fire and aviation policies are understood and followed.	✓	✓	✓
13	Use a system which provides for increased levels of oversight on specific fires and multiple fire situations.	✓	✓	✓
14	Organize, conduct, and/or participate in fire management related evaluations, reviews, critiques, and inspections.	✓	✓	✓
15	Provide for and personally participate in periodic site visits to individual incidents and projects.	✓	✓	✓
16	Utilize a complexity analysis process to ensure the proper level of management is assigned to all incidents.			✓
17	Review and evaluate performance of the fire management organization and take appropriate actions.	✓	✓	✓
18	Ensure incoming personnel and crews are briefed prior to fire and aviation assignments.			✓
19	Ensure a Wildland Fire Situation Analysis (WFSA) is completed and retained for all fires that escape initial attack.			✓
20	Monitor fire season severity predictions, fire behavior, and fire activity levels. Take appropriate actions to ensure safe, efficient, and effective operations.	✓	✓	✓
21	Ensure that you have adequate resources available to implement suppression strategies on active fires. If not, make needed adjustments to provide for safe, effective, and efficient suppression operations.			✓
22	Provide dispatchers with adequate guidance, training and decision-making authority to ensure timely decisions.		✓	✓
23	Ensure that adequate funding for prescribed fire and other hazardous fuel reduction operations appears in the FMP.		✓	✓

	Performance Required	D-F&A	SFMO	FMO
24	Ensure a written, approved burn plan exists for each prescribed fire project			✓
25	Ensure all escaped prescribed fires receive a review at the proper level.	✓	✓	✓
26	Ensure that a qualified Incident Commander is assigned to all incidents commensurate to incident complexity.			✓
27	Ensure effective transition of incident management occurs and oversight is in place.		✓	✓
28	Develop agreements and operating plans on an interagency basis to increase effectiveness and efficiencies.	✓	✓	✓
29	Effectively represent fire and aviation management in interdisciplinary planning efforts.	✓	✓	✓
30	Work with cooperators to identify processes and procedures for providing fire safe communities within the wildland urban interface.		✓	✓
31	Develop, maintain, and annually evaluate the FMP to ensure accuracy and validity.	✓	✓	✓
32	Develop and maintain current operational plans.		✓	✓
33	Ensure that reports and records are properly completed and maintained.	✓	✓	✓
34	Ensure fiscal responsibility and accountability in planning and expenditures of allocated and emergency funds.	✓	✓	✓
35	Ensure budget requests and allocations reflect MEL in the FMP.	✓	✓	✓
36	Represent management on interagency coordination groups and MAC groups.	✓	✓	✓

## Requirements for Fire Positions

The following lists show the minimum operational experience required for BLM fire management positions.

### Prescribed Fire & Fuels Management Specialist:

- Prescribed Fire Burn Boss 2 (RxB2)
- Strike Team Leader/Task Force Leader
- S-490
- Working knowledge of smoke management techniques
- Working knowledge of fire effects (Rx-340 level)
- Working knowledge of the NEPA process

### Fire Control Officer or Assistant FMO:

- Type 3 Incident Commander (currently qualified)
- Working knowledge of dispatch operations
- Working knowledge of fire aviation operations
- Working knowledge of fire equipment
- Working or demonstrated knowledge of fire danger rating systems
- Prescribed Fire Burn Boss (RxB2)

### FMO: All of the above, except currency, plus

- Fire Control Officer (FCO) or Assistant FMO or Area FMO or Lead Dispatcher/Center Manager
- Working knowledge of incident command system as it relates to incident management teams functions and roles
- Division Supervisor or Unit Leader
- Working knowledge of long-range fire behavior predictive systems

### State Office Prescribed Fire & Fuels Management Specialist:

- Prescribed Fire Burn Boss 1 (RxB1) or Prescribed Fire Manager 2 (RxM2)
- Division Supervisor or Unit Leader
- Advanced knowledge of smoke management techniques (Rx-450 level)
- Advanced knowledge of fire effects (Rx-540 level)
- Working knowledge of the NEPA process

### Assistant State FMO or State Fire Operations Officer:

- FMO, Geographic Area Coordinator
- Division Supervisor or Unit Leader
- Working knowledge of the coordination system and fire aviation operations
- Prescribed Fire Manager (RxM2) or Prescribed Fire Burn Boss 1 (RxB1)
- Working knowledge of NFDRS & long-range fire behavior predictive systems

**State Fire Management Officer:**

- FMO or state or national fire and aviation staff
- Performed at command and general staff level on a Type 1 or Type 2 incident
- Working knowledge of coordination center operations
- Working knowledge of fire aviation management

**Notes and Exceptions**

- 1 "Equivalent" experience in positions in the Alaska Fire Service (AFS), NIFC, other federal, state and local agencies will be given full credit.
- 2 Other "equivalent" experience will be considered on a case-by-case basis. An example of this would be that an area manager or operations chief may meet the requirements for state fire positions, if they have the minimum fireline experience listed above.
- 3 Extended details can be considered, if they were equivalent to a season of experience.
- 4 Experience requirements for positions in AFS, O&C Districts, NIFC, national office and other fire management positions in field offices and state offices will be established as vacancies occur, but will be commensurate with the position's scope of responsibilities.
- 5 State and field FMO positions will not be filled with trainees. However, positions which are subordinate to state or field FMOs may be filled with trainees with the following conditions:
  - a The selected trainee can meet full qualification experience requirements within two years.
  - b The **trainee** will be given a reduced level of operational responsibility which is commensurate with their experience.
- 6 Individuals incumbent in FMO positions who do not meet these experience requirements can be waived of these requirements if they have performed satisfactorily during the past fire season(s).



## Sample Delegation of Authority

### Delegation For State Fire Management Officers

In order to effectively perform their duties, a SFMO must have certain authorities delegated from the state director. This delegation is normally placed in the state office supplement to BLM Manual Section 1203. The delegation of authority should include:

- Serve as the state director's authorized representative on geographic area coordination groups including MAC groups.
- Coordinate and establish priorities on uncommitted fire suppression resources during periods of shortages.
- Coordinate logistics and suppression operations statewide.
- Relocate BLM pre-suppression/suppression resources within the state based on relative fire potential/activity.
- Correct unsafe fire suppression activities.
- Direct accelerated, aggressive initial attack when appropriate.
- Enter into agreements to provide for the management, fiscal, and operational functions of combined agency-operated facilities.
- With concurrence of agency administrator, close areas under the administration of the BLM during periods of high hazard to prevent fires (43 CFR 8364.1).
- Enforce closures and prohibitions against burning on BLM-administered land (43 CFR 4140; 43 CFR 4170).
- Suspend prescribed fire activities when warranted.
- Approve hiring of EFF personnel for up to 14 days for pre-suppression/suppression work, in addition to training.
- Approve emergency fire severity funding expenditures not to exceed the \$100,000 annual authority of the state director.

## Delegation for Field Office Fire Management Officers

\_\_\_\_\_, Fire Management Officer for the \_\_\_\_\_ Field Office, is delegated authority to act on my behalf for the following duties and actions:

1. Represent the \_\_\_\_\_ BLM in the \_\_\_\_\_ Multi-agency Coordinating Group in setting priorities and allocating resources for fire emergencies.
2. Coordinating all prescribed fire activities in the \_\_\_\_\_ and suspending all prescribed fire and issuance of burning permits when conditions warrant.
3. Assure that only fully-qualified personnel are used in wildland fire operations.
4. Coordinate, preposition, send and order fire and aviation resources in response to current and anticipated zone fire conditions.
5. Oversee and coordinate the \_\_\_\_\_ Interagency Dispatch Center on behalf of the BLM.
6. Request and oversee distribution of Severity funding for Field Office Fire and Aviation.
7. Approve Fire Program requests for overtime, hazard pay, and other premium pay.
8. Ensure all incidents are managed in a safe and cost-effective manner.
9. Coordinate and provide all fire and prevention information needs to inform internal and external costumers with necessary information.
10. Coordinate all fire funding accounts with the Budget Officer to assure field office Fiscal guidelines are adhered to and targets are met.
11. Approve and sign aviation request forms.

\_\_\_\_\_  
Field Office Manager

\_\_\_\_\_  
Date

## 3 – Interagency Coordination and Cooperation



Interagency cooperation is vital to attain the BLM fire management program objectives. The ability of a single agency to implement a fire management program is limited without coordination with and assistance from other organizations. Interagency cooperation and the coordination of shared resources and common activities is imperative at all organizational levels. An understanding of the roles each agency has at each organizational level is necessary to maximize the benefits of interagency coordination and ensure the fulfillment of agency responsibilities.

### Interagency Assistance

The authority for interagency agreements is found in "Interagency Agreement Between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, Fish and Wildlife Service of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture" (1982).

The authority for rendering emergency fire or rescue assistance outside of the Bureau of Land Management is the Reciprocal Fire Protection Act of May 27, 1955 (69 Stat. 66), and the *Departmental Manual*, 910 DM.

### Coordination

#### National Level Coordination

***The National Wildfire Coordinating Group (NWCG)*** The NWCG was formed on March 18, 1976, by cooperative agreement between the Secretaries of Agriculture and Interior. The purpose of NWCG is to improve the effectiveness and efficiency of all federal and state wildland fire management agencies in the United States. The group accomplishes this goal by coordinating the programs of the participating agencies in order to work together constructively. NWCG provides a formalized system through which agreement may be reached on substantive issues in fire management. Agreed-on policies, standards, and procedures are then implemented directly by each agency. The Assistant Director, Office of Fire and Aviation Management is the bureau's representative on the NWCG.

***The Federal Fire and Aviation Leadership Council*** The Council is a self-directed group which provides a forum for discussion in which federal issues, both- short and long-term, can be resolved. It is authorized based on the master agreement between the Forest Service and the Department of the Interior bureau directors, October 1, 1982. It is formed to improve coordination and integration of federal fire and aviation programs while recognizing individual agency missions. The Council deals with long-term strategic views and fosters improved integrated operations at the national, geographic and local levels. Teams may be established as needed by the Council to deal with federal issues.

***The Interior Fire Coordination Committee (IFCC)*** The IFCC guides and coordinates development of wildland fire policy among the four wildland management bureaus in the DOI. IFCC provides leadership and advice to develop, coordinate, and maintain wildland fire management capabilities, and to standardize procedures, methods, and practices within the DOI. BLM units must comply with these DOI standards. The Assistant Director, Office of Fire and Aviation Management is the bureau's representative on the IFCC.

***National Interagency Fire Center (NIFC)*** NIFC is located at Boise, Idaho, and is a complex of federal agencies all of which have wildland fire responsibilities. The BLM serves as the host for the National Park Service (NPS), Bureau of Indian Affairs (BIA), and the Fish and Wildlife Service (FWS). The Forest Service from the Department of Agriculture and the National Weather Service (NWS) from the Department of Commerce are also located at NIFC. These bureaus and agencies form an interagency partnership to provide safe, effective, and efficient policies, guidance, technical, and logistical support to the wildland fire management community.

***National Multi-Agency Coordination (MAC) Group*** During national preparedness levels IV and V the national MAC group is activated and twice daily briefings are conducted to establish national priorities and provide national leadership and direction to wildland fire activities. The national MAC is comprised of the directors of the BLM, Forest Service, BIA, NPS, FWS, State Foresters' representative, and a representative of the NWS.

The BLM, BIA, Forest Service, NPS, and FWS directors at NIFC have written delegated authority from their respective agency heads to:

- Represent his/her agency on all matters related to wildland fire operations. This includes membership on the national MAC group; determining national priorities and allocation/re-allocating incident resources.
- Represent the state's interests in the absence of the State Foresters' representative as established in the agreement with the National Association of State Foresters.

### **Geographic Area Level Coordination**

State offices oversee and facilitate the implementation of interagency standards and policies developed at the national level. Within their geographic areas, SFMOs help develop and implement interagency wildland fire management programs to increase effectiveness, and efficiencies. Through coordination with counterparts from other agencies, SFMOs assure that the bureau contributes appropriately to geographic interagency fire management needs.

### **Local Level Coordination**

Fire management plans, preparedness plans, mobilization guides, cooperative agreements, and other supporting documents identify the necessary local sources, types, and levels of interagency coordination. They also delineate the process whereby compliance with national and geographic area policies and standards will be achieved. FMOs and their staffs develop, maintain, and execute the cooperative interagency relationships.

## **Interagency Mobilization**

### **National**

Mobilization tests interagency cooperation and demonstrates the value of interagency coordination. The National Interagency Mobilization Guide, which is revised annually, clearly describes interagency mobilization and dispatch procedures at all levels. Its directives will be followed by all states and field offices without deviation.

### **State**

BLM statewide program dispatch occurs through geographical coordination centers to meet wildland fire mobilization requirements. These centers review simultaneously occurring incidents and dispatch interagency resources on a priority basis. This resource allocation and/or priority process is done through the guidance of the geographic area mobilization plan or a MAC group. Local FMOs may be asked to provide resources or to receive requested resources based on the priorities established by the geographic/national coordination center or MAC group.

### **Local**

Local dispatch occurs through local dispatch centers, most of which are interagency. Local dispatch centers are also responsible for keeping agency fire managers informed on local resource commitment and levels of fire activity. Local dispatch centers should have their own mobilization plans and expanded dispatch plans. Local MAC groups (when activated), are composed of representatives from agencies with local jurisdiction; they set priorities for incidents and the allocation of scarce resources. Local oversight committees,

composed of representatives of the same agencies, are responsible for providing adequate funding and staffing of these dispatch centers.

## Agreements and Contracts

Field offices are responsible for developing agreements or contracts with local agencies and fire departments to meet mutual needs or contract for suppression and/or prescribed fire services. Concerns of area-wide scope should be addressed through state agreements.

All appropriate agreements and operating plans (updates) will be provided to the servicing dispatch center. The authority to enter into interagency agreements is extensive and found in *BLM Manual 9200*, and the *Departmental Manual*, 910 DM.

### Mutual Aid Agreements

The national agreement, which serves as an umbrella for interagency assistance among federal agencies, is the "Interagency Agreement Between the Bureau of Land Management, Bureau of Indian Affairs, National Park Service, Fish and Wildlife Service of the United States Department of the Interior and the Forest Service of the United States Department of Agriculture" (1982). This agreement and other national agreements provide a framework for and grant substantial latitude in the development of state and local agreements and operating plans.

Besides the national agreement, state and local cooperative agreements shall be developed for mutual-aid assistance. These agreements are essential to the fire management program in each field office.

Agreements shall lead to positive interaction among the participating parties by providing for areas of interaction by addressing all potential areas of cooperation and coordination in fire management programs.

**Agreements** The following shall be used as the basis for establishing plans and reviewing existing plans. Each agreement shall strive to enhance safety, effectiveness, and efficiency in wildland fire management.

- 1 Cooperation in prevention, pre-suppression, suppression, and prescribed fire management operations.
- 2 Coordination in development and implementation of fire management plans, including fire management strategies, tactics, and methods.
- 3 Identification of parties responsible for implementing various aspects of the agreement.
- 4 Command Structure – In order to facilitate a cooperative effort on a wildfire incident, the incident command system (ICS) shall be used. If the incident

involves multiple jurisdictions, a unified command should be implemented. Command of the incident may also be delegated from the agency with jurisdiction to the cooperating agency, by mutual agreement, as necessary.

- 5 Communications – At a minimum, there will be one common designated radio frequency used by command and/or the officers in charge of the requesting and responding parties.

It is understood that the cooperating parties agree to the use of their assigned radio frequencies between parties. However, the assigned frequencies will only be used when the parties are engaged in common fire suppression activities or other emergency incidents.

- 6 Liabilities/Waivers – Each party waives all claims against every other party for compensation for any loss, damage, personal injury, or death occurring as a consequence of the performance of this agreement unless gross negligence on any part of any party is determined.
- 7 Distance/Boundary Limitations – The requesting party shall first call the party nearest to the wildfire incident unless the specified resources of a more distant party are required. The responding party will furnish personnel and equipment as requested and as available, and/or impose a mileage limitation from the responding party's jurisdictional boundary. Any mileage limitations will be identified and agreed to by all participating parties and shall be specified in the annual operating plan.
- 8 Time/Duration – It shall be the responsibility of the requesting party to release the resources loaned by the responding party in a timely manner so as to ensure that the resources loaned by the responding party are not needlessly detained. If appropriate, a time limitation as to number of hours spent on any wildfire incident may be imposed. Any time limitations will be identified and agreed to by all participating parties and shall be specified in the annual operating plan.
- 9 Qualifications/Minimum Requirements – The qualifications of fire suppression and prescribed fire personnel, minimum requirements for personal protective equipment, and fire equipment performance standards will be identified in an annual operating plan by the parties to this agreement in accordance with their respective standards. The responding party will send only those resources that meet the identified qualifications, requirements, and standards.
- 10 Reimbursements/Compensation – Except otherwise herein specified, the requesting party shall not be liable for any compensation to the responding party for the loan of equipment or personnel. All incidents that require

reimbursement and/or compensation will be identified and agreed to by all participating parties through a cost share agreement.

- 11 Appropriation Limitations – Parties to this agreement are not obligated to make expenditures of funds or reimbursements of expenditures under terms of this agreement unless such funds are appropriated for that purpose by the Congress of the United States of America, by the Counties of \_\_\_\_\_ by the Cities of \_\_\_\_\_ and/or the Governing Board of Fire Commissioners of \_\_\_\_\_.
- 12 Annual Operating Plan – An annual operating plan will be prepared and used to define and update specific operating procedures prior to each fire season.
- 13 Termination Procedure – This agreement shall remain in full force and effect unless canceled by any party to this agreement on written issuance of 30 days notice. If any party determines to withdraw from this agreement, withdrawal shall be effective on service of written notice to all other parties.

**Annual Operating Plans** Each agreement shall be accompanied by an annual operating plan which shall be reviewed, updated, and approved annually prior to the fire season. The plan may be amended after a major incident as a part of a joint debriefing and review. The plan shall contain detailed, specific procedures which will provide for safe, efficient, and effective operations. The following items shall be addressed in the annual operating plan.

- 1 Responding Party – All parties should be aware that there may be many opportunities in which the responding party may not have the ability to provide mutual aid. Lack of response could result from limited or unavailable fire suppression personnel prior to or after fire season or multiple fires occurring during the fire season. Rural fire districts may also experience their own fire situations and/or may not have adequate numbers of qualified fire personnel or appropriate fire suppression equipment to meet the request. In this case, a secondary request for low exposure equipment, such as a water tender, may be appropriate.
- 2 Command Structure – Unified command should be used, as appropriate, whenever multiple jurisdictions are involved unless one or more parties request a single agency incident commander (IC). If there is a question about jurisdiction, fire managers should mutually decide and agree on the command structure as soon as they arrive on the fire and this should be confirmed by agency administrators as soon as possible. Once this decision has been made, the incident organization in use should be relayed to all units on the incident as well as dispatch centers. In all cases, the identity of the IC must be made known to all fireline and support personnel.
- 3 Communications – In mutual aid situations, the common designated radio frequency should be a “direct” or “line of sight” frequency. Responding and



requesting parties should monitor for any change in weather conditions or any emerging safety or emergency situations. Once command decisions are made, they must be transmitted and confirmed over the responding and requesting parties' tactical frequencies.

Clear text should be used, and use of personal "identifiers" and non-ICS acronyms should be avoided. (For example, a BLM radio transmission such as, "Jones, Dispatch" would likely be meaningless to a mutual aid cooperator who is not familiar with "Jones.")

Radio protocol and equipment availability/capability may be that the fire departments and BLM would each be using their own tactical frequencies in fire suppression and allowing the BLM "direct" frequency to be the communication link between the responding and requesting parties for command and/or emergency situations. However, continuous use of separate frequencies could result in miscommunication; for this reason, it is important that the AREP be able to monitor multiple frequencies.

This paragraph in the annual operating plan shall meet Federal Communications Commission (FCC) requirements for documenting shared use of radio frequencies.

- 4 Distance/Boundaries – Responding and requesting parties should identify any mileage limitations from mutual boundaries where "mutual aid" is either pay or non-pay status. Also, for some fire departments, the mileage issue may not be one of initial attack "mutual aid" but of mutual assistance. In this situation, you may have the *option* to make it part of this agreement or identify it as a situation where the request would be made to the agency having jurisdiction, who would then dispatch the fire department.
- 5 Time/Duration – Responding and requesting parties should identify time limitations (usually 24 hours) for resources in a non-reimbursable status, and "rental rates" when the resources are in a reimbursable status. Use of NWCG or geographic area interagency equipment rates is strongly encouraged.
- 6 Qualifications/Minimum Requirements – Agreements on minimum qualifications for fire personnel, minimum requirements for personal protective equipment (PPE), and performance of fire suppression equipment may require some flexibility. The BLM, under National Interagency Incident Management System (NIIMS) concept, has agreed to accept cooperator's standards. These standards are generally reasonable and should be acceptable for mutual aid.

Minimum training requirements may be the most difficult to attain for some of the small and rural fire departments. These departments rely on volunteer firefighters who typically receive training at monthly (weekend or evening) meetings. Adding an additional 32-40 hours of wildland fire training to their

existing training may be prohibitive in the short term. To overcome this obstacle;

- Train the training officers of the fire departments who, in turn, could provide additional training to volunteers.
- Encourage trainees, as available, to attend federal or state fire schools.
- Identify a consolidated wildland train-the-trainer cadre from several fire departments to reduce the number of trainers that need to be trained.
- Provide training opportunities on weekends rather than during the week. For example, training over two consecutive weekends would provide sufficient time to complete the S-130 and S-190 courses.

Wildland Fire PPE requirements: See National Fire Protection Association (NFPA) and NWCG standards. The NFPA standards are essentially identical to those of NWCG, but may be more acceptable because of the nature of these two organizations.

Physical fitness requirements: Include the work capacity test and/or a physical agility test that is in compliance with NFPA Standards 1001 or 1500.

Engines or related equipment: Engines and fire suppression equipment should meet NFPA standards.

- 7 Reimbursement/Compensation – Compensation should be “standard” for all fire departments in the state. The rates identified shall be used. Reimbursements could be negotiated as some fire departments may not expect full compensation but only reimbursement for their actual costs. Also, whenever possible, equipment and operators should be contracted as a unit and paid at a flat rate. Vehicles and equipment operated under the federal excess property system will only be reimbursed for maintenance and operating costs.
- 8 Cooperation – The annual operating plan will be used to identify how the cooperators will share expertise, training, and information on items such as prevention, investigation, safety, training.

Any agreement which obligates federal funds or commits anything of value, must be signed by the appropriate warranted contracting officer. Specifications for funding responsibilities should include billing procedures and schedules for payment. Any agreement that extends beyond a fiscal year must be made subject to the availability of funds. Any transfer of federal property must be in accordance with federal property management regulations. All agreements must undergo periodic joint review and, as appropriate, revision. The best general reference on agreements is *Partnership for Efficiency Through Cooperative Agreements* by the NWCG.

### **Contracts**

Contracts may be used where they are the most cost-effective means for providing fire protection commensurate with established standards. A contract, however, does not absolve a field office manager of the responsibility for managing a fire program. The approved fire management plan must define the role of the contractor in the overall program.

Contracts should be developed and administered in accordance with federal acquisition regulations. In particular, a contract should specify conditions for abandonment of a fire in order to respond to a new call elsewhere.

### **Emergency Assistance**

Emergency assistance may be provided by the BLM to adjacent jurisdictions upon their request in the absence of any formalized agreements. However, to provide safe, efficient, and effective emergency response, BLM offices must enter into agreements with emergency response agencies. The National Interagency Coordination Center is delegated authority to support non-fire emergencies through several department and bureau manuals, interagency agreements, and memorandums. Local emergency response must be approved by the appropriate agency administrator.

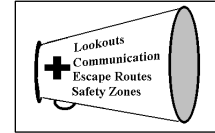
### **FEMA and the Wildland Fire Program**

Under provisions of the Robert T. Stafford Disaster and Emergency Assistance Act (P.L. 93-233, as amended) and the Executive Order 12148, Federal Emergency Management (July 20, 1979, as amended) wildland agencies provide assistance to Presidential declared disasters and emergencies nationwide. The Federal Emergency Management Agency (FEMA) is the overall coordinator of the Federal Response Plan (FRP) which guides 26 federal agencies and the American Red Cross in response activities. The FRP is based on the fundamental assumption that a significant disaster or emergency will overwhelm the capability of state and local governments to carry out extensive emergency operations. These operations have been grouped into 12 emergency support functions (ESF); and departments and agencies have been assigned primary and support responsibilities for each of these functions.

In the Federal Response Plan, the Forest Service is the primary agency responsible for ESF #4: Firefighting. The BLM has been assigned support responsibility for ESF #4 and for other emergency support activities, as requested.



## 4 – Safety



### Policy

**“Firefighter and public safety is the first priority. All Fire Management Plans and activities must reflect this commitment.”**

**Federal Wildland Fire Policy, December 1995**

**“Every BLM supervisor, employee, and volunteer is responsible for following safe work practices and procedures, identifying and reporting unsafe conditions.” (“Safety and Health for Field Operations,” *BLM Manual Handbook 1112-2*)**

### Overview

“We are committed to *Zero Tolerance* of carelessness and unsafe actions. The commitment to and accountability for safety is a joint responsibility of all firefighters, managers, and administrators. All land management plans and all suppression plans and actions must reflect this commitment. Individuals must be personally committed and responsible for their own performance and accountability.

Please join us in adopting firefighting’s code of safe practices:

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.

Every Firefighter, Every Fireline Supervisor, Every Fire Manager, and Every Agency Administrator has the Responsibility to Ensure Compliance with Established Safe Firefighting Practices.”

*Bruce Babbitt and Dan Glickman; Secretaries of Interior and Agriculture*

### Objectives

The goal of the fire safety program is to provide direction and guidance for the safe and effective management of fires. Safety is the responsibility of everyone assigned to wildland and prescribed fire. Safety must be practiced at all operational levels from the director, state director, field office, and area manager to the employees in the field. The safety of employees and the public alike must

be of prime concern during fire management activities. Agency administrators need to stress that firefighter and public safety always takes precedence over property and resource loss. Linkage between the fire management staff and unit safety officers is essential in achieving this objective.

For additional safety guidance and references please refer to:

- *Fireline Handbook, 410-1*
- *Interagency Incident Response Pocket Guide*

## Food and Nutrition

Nutritious food is not only a morale booster; but more importantly, it fuels the muscles for hard work and the internal organs for health and fitness. A firefighter may burn 5,000 to 6,000 calories a day. These must be replaced to avoid cramping, fatigue, and impaired judgement. Government-provided food must be low in fats and high in complex carbohydrates. A good diet for any hard work is 60% carbohydrates, 25% fat and 15% protein. Drinks provided must replace essential fluids lost from the body during exercise. Firefighters must replace one to two quarts of fluids per hour. Water is an excellent way to replace this fluid loss. Natural juices and sport drinks contain energy-restoring glucose. Avoid caffeinated, carbonated and "diet" drinks. On a normal fireline assignment, firefighters must replace 12 or more quarts of fluids a day.

## Fatigue

Firefighting is hard work, dirty and inherently dangerous. The fire itself creates much of that danger. But there is a less visible threat – fatigue. Without enough sleep and rest, after long hours in heat and smoke, or stressful office settings, even the fittest worker tires. Fire management staff, dispatchers, and support personnel are subject to long hours and high levels of stress. Tired people can make mistakes. In fire activities, mistakes often mean accidents and injuries. Managers and fire management personnel can take actions to lower the stress that causes fatigue. Here are three keys to controlling the fatigue-related stresses of wildland fire activities.

### Work & Rest

Sleep is a prime factor in controlling fatigue. It is possible to force tired muscles to keep on working, but the brain can't function properly without sleep. Accidents and injuries result among those pushed too much. NWCG has established work and rest guidelines for incident management. However, these are not evenly applied by managers of initial attack crews. For this reason managers and incident management teams should establish work and rest schedules that minimize fatigue in the following ways:

- Establish record-keeping systems that track crew work time.

- Plan and strive to provide one hour of sleep or rest for every two hours worked.
- When deviating from work-rest guidelines, agency administrator or incident commander must approve in writing.
- Start each operational period with rested crews.
- Provide an adequate sleep environment.
- Breaks during fire operations should be from 10 to 30 minutes in length.
- Frequent breaks of between 10 to 30 seconds should be encouraged.

The pulse is a good way to gauge fatigue. Your pulse should recover to less than 110 beats per minute; if not, you need a longer break. A firefighter's wake-up pulse can signal potential problems. If it is 10% or more above normal, it can mean fatigue, dehydration, or even a pending illness.

### **Heat Stress**

Heat becomes a problem when humidity, air temperature, and radiant heat combine with hard work to raise body temperature beyond safe limits. There are three forms of heat stress. The mildest is heat cramps. Heat stress can progress to heat exhaustion and heat stroke. At the first sign, stop work, get into the shade, and begin drinking fluid. **HEAT STROKE IS A MEDICAL EMERGENCY!** Delayed treatment can result in brain damage and even death. Sweat is your main defense. Everyone on the fireline must understand the importance of drinking often. Firefighters must replace one to two quarts of fluids per hour; water is an excellent way to replace this fluid loss. Natural juices and sports drinks contain energy-restoring glucose. Avoid caffeinated, carbonated and "diet" drinks. On a normal fireline assignment firefighters must replace 12 or more quarts of fluid per day.

### **Smoke and Carbon Monoxide**

For decades, firefighters and fire managers have been concerned about the health effects of smoke from wildland and prescribed fires. In 1989 a NWCG team met to develop a study plan to determine the immediate and long-term effects of exposure to forest fire smoke. The plan proposed studies in the areas of emissions characterization, employee exposure, health effects, risk assessment, and risk.

The study culminated in a consensus conference held in April, 1997. The conference reviewed progress in of the study plan, and reached consensus a risk management plan that could be implemented within the existing fire management structure.

In brief, participants concluded that toxic emissions were present in smoke, that the incidence of exposure in excess of Occupational Safety and Health Administration (OSHA) permissible exposure limits was relatively low (fewer than 5 percent of prescribed fire cases, even less in wildfire), and that documented health effects were moderate and often reversible. Recommendations for risk management are also included in the document. Copies are available free of

charge in limited numbers. Call USDA Forest Service, Technology and Development Program, Publications. Ask for *Health Hazards of Smoke, Recommendations of the Consensus Conference*, April 1997. The item number is 97512836.

Exposure studies show that firefighters are sometimes exposed to levels of smoke that exceed OSHA permissible exposure limits. Improvements in tactics should minimize opportunities for exposure.

### **Minimizing Exposure to Smoke in Wildland Fire:**

- Include smoke hazards on the ICS-215A worksheet at planning and briefing sessions.
- use flank attack as opposed to head attack, where appropriate, in heavy smoke situations.
- Minimize mop-up when possible.
- Adjust operational periods on mop-up to avoid periods of inversion.
- Use time and patience instead of water to put the fire out: use burn piles, allow areas to burn themselves out. Rely on burn-up instead of mop-up.
- Minimize snag falling, consistent with safety concerns, to avoid putting heavy fuels on the ground that will require mop-up.
- In heavy smoke conditions, give up acres to gain control.
- Fire behavior forecasts should discuss smoke and inversion potentials.
- Locate camps and incident command posts in areas that are not prone to inversions.
- Reduce dust by watering roads at the incident, on drier roads leading to the incident and in the base camp area.
- Use minimum impact suppression techniques (MIST).

## **Personal Protective Equipment**

**All firefighting personnel** must be equipped with the proper personal protective equipment (PPE); operational personnel on wildfires and prescribed fires are required to use PPE. 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 material.

Required PPE includes:

- 8" high laced leather boots with lug soles (condition of hire)
- Fire shelter
- Hard hat with chin strap
- Goggles
- Ear plugs
- Aramid shirts
- Aramid trousers
- Leather gloves
- Individual first aid kits



Special PPE and a job hazard analysis is required for operations involving alum-gel, aircraft (particularly helicopters), and felling. These include:

- Chainsaw chaps
- Earmuffs or earplugs
- Face shield or goggles
- Flight helmet
- Dust masks
- Alum-gel mixing crew must be equipped with eye protection, fire retardant anti-static or 100% cotton coveralls, and gloves.

Use of safety equipment is required of all personnel exposed to fireline hazards including prescribed fire operations. Employees must be trained to use safety equipment effectively.

### **Head Protection**

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

Helicopter crew persons and helitack crews will be issued and wear flight helmets with chin strap securely fastened when riding in helicopters. All contract helicopter personnel must comply with this standard.

Acceptable helmets for fireline use are: "Safety helmet, wildfire" NSN 8415-01-055-2265 listed in GSA's Wildfire Protection Equipment and Supplies Catalog or equivalent helmet meeting NFPA Standard 1977 requirements.

### **Eye and Face Protection**

The following positions require the wearing of goggles: nozzle person, chainsaw operator, heliport and ramp personnel, and retardant mixing crew members. Other personnel in the immediate vicinity of these operations may also require eye protection. Full face protection offered by face shields must be worn by tool sharpeners using power sharpeners and Terra-Torch® nozzle operators.

### **Hearing Protection**

Personnel who are exposed to a noise level in excess of 90 db must be provided with, and wear, hearing protection. Seasonal fire suppression personnel must be issued two pairs of earplugs, either universal or fitted type, at the beginning of the fire season. Other fire crew members must be issued earplugs upon fire assignment. Personnel must be trained to use and clean earplugs to prevent hearing damage and hygiene problems. Hearing protection may be required on helicopter flights.

Earmuffs will be issued to the following personnel:

- Chainsaw and portable pump operators
- Helibase and aircraft ramp personnel

- Retardant mixing personnel
- Any other personnel exposed on a regular basis to damaging noise levels. Intermittent saw and pump operators may use earplugs.
- Engine operators.

National Fire Equipment System kits contain earmuffs for the above positions. Any kits maintained on a unit for these positions must also comply with the kit's hearing protection standards.

### **Leg Protection**

Chainsaw chaps, in good condition, must be worn by all chainsaw operators.

### **Foot Protection**

Personnel assigned to fires must wear heavy duty, 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 hire for firefighting positions and are purchased by the employee prior to employment.

### **Fire Shelters**

Fire shelters will be issued and worn by all line personnel. They will be inspected regularly, and "training" shelters will be deployed annually at required refresher safety training. The shelter is to be viewed as a **last resort**, and will not be utilized as a tactical tool. Supervisors and firefighters must never employ fire shelters instead of using well-defined and pre-located escape routes.

## **Fireline Safety**

### **Incident Briefings**

The fire manager, through the IC, must ensure that safety factors are covered with incident personnel at all operational briefings and that safety briefings are occurring throughout the fire organization. The identification and location of escape routes and safety zones must be stressed. The IC, safety officer, fire behavior analyst and remainder of the command and general staff will use Standard Fire Orders, Watch Out Situations, and ICS 215-A (L.C.E.S.) for guidance at strategy meetings, during briefings and when developing the incident action plan, safety message, and medical plan.

### **LCES Key to Safety in the Wildland Fire**

#### **Environment**

- L – Lookout(s)
- C – Communication(s)
- E – Escape routes
- S – Safety zone(s)

***LCES is a System for Operational Safety*** In the wildland fire environment where four basic safety hazards confront the firefighter—lightning, fire-weakened timber, rolling rocks, and entrapment by running fires—LCES is key to safe procedure for firefighters. LCES stands for “lookout(s),” “communication(s),” “escape routes,” and “safety zone(s)”—an interconnection each firefighter must know. Together the elements of LCES form a safety system used by firefighters to protect themselves. This safety procedure is put in place before fighting the fire: select a lookout or lookouts, set up a communication system, choose escape routes, and select safety zone or zones.

In operation, LCES functions sequentially. It’s a self-triggering mechanism: lookouts assess—and reassess—the fire environment and communicate to each firefighter threats to safety; firefighters use escape routes and move to safety zones. Actually, all firefighters should be alert to changes in the fire environment and have the authority to initiate communication.

***Key Guidelines:*** LCES is built on two basic guidelines:

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

“Safety is defined as freedom from exposure to danger, exemption from injury, and to protect from accident.” Safety requires knowledge and skill in methods of avoiding accidents, injury and exposure to danger. As such, it requires an ability and attitude that grows with experience and training. In fire management activities there are subjective hazards that we create, and objective hazards such as: fire entrapment, snags, rolling debris, and terrain. The subjective hazards, we have control over just by using our attitudes and abilities. The objective hazard we cannot eliminate, these are the risks inherent to fire management activities. The possibility of injury or entrapment is always there, the probability may be large or small. We must take steps to reduce the risks associated with our actions. By using a set procedure during each operational period, we can ensure our safety by taking the following steps to minimize our exposure to hazards:

- Define the assignment.
- Identify the hazards.
- Analyze the situation as it changes.
- Re-analyze the situation as it changes.

In the following “Risk Analysis” section, answer each question for the Watch Out Situation by checking the appropriate column. For each question answered with a no, the Fire Orders and LCES become important responses to reduce the risk of entrapment.

### Risk Analysis

Situation	Considerations	Yes	No
<b>Fight Fire Aggressively but Provide for Safety First</b>	<b>Aggressively:</b> <ul style="list-style-type: none"> <li>• Is the suppression method adequate?</li> <li>• Are there adequate resources and time for effective suppression?</li> </ul> <b>Safety:</b> <ul style="list-style-type: none"> <li>• Are lookouts posted?</li> <li>• Is communications prompt with crews and other resources?</li> <li>• Have escape routes been established?</li> <li>• Do you feel comfortable with your assignment?</li> </ul>		

To Reduce the Risks – Post lookouts until the fire is sized up and escape routes and safety zones are established, or **back off** if the situation is too complex!

<b>Initiate ALL Actions Based on Current and Expected Fire Behavior</b>	<ul style="list-style-type: none"> <li>• Can the resources you are replacing give you a thorough briefing?</li> <li>• Can you observe the area, use scouts?</li> <li>• Have escape routes and safety zones been thoroughly scouted?</li> <li>• Are they marked for night use?</li> <li>• Have potential dangers been located, can they be dealt with?</li> <li>• Access to weather and fire behavior forecast?</li> </ul>		
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To Reduce the Risks – Post lookouts, check communications, back off if the situation becomes too complex, or if you have doubts about your escape routes or safety zones.

Situation	Considerations	Yes	No
<b>Safety Zones and Escape Routes NOT Identified</b>	<ul style="list-style-type: none"> <li>• Can you identify them by scouting?</li> <li>• Are they large enough to accommodate everyone without using fire shelters?</li> <li>• Does the escape route need clearing? And marking?</li> <li>• How much warning time do you need to get to your safety zone safely?</li> <li>• Does everyone know the escape routes and safety zones?</li> <li>• Can you create a safety zone if you don't have one?</li> <li>• Have you seen the escape routes and safety zones?</li> </ul>		

To Reduce the Risks – Back off until you find safety zones or escape routes!

<p><b>In Country NOT Seen In Daylight</b></p>	<ul style="list-style-type: none"> <li>• Can the resources you are replacing give you a thorough briefing?</li> <li>• Can you observe the area, use scouts?</li> <li>• Have escape routes and safety zones been thoroughly scouted?</li> <li>• Are they marked for night use?</li> <li>• Have potential dangers been located, can they be dealt with?</li> </ul>		
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To Reduce the Risks – Post lookouts, check communications, back off if the situation becomes too complex, or if you have doubts about your escape routes or safety zones.

<p><b>Fire NOT Scouted and Sized Up</b></p>	<ul style="list-style-type: none"> <li>• Can you observe personally, or use scouts?</li> <li>• Do you know the location of the fire perimeter?</li> <li>• Do you know the direction of fire spread?</li> <li>• Does the direction of fire spread increase the risk?</li> <li>• Do you know the fuels and their condition?</li> <li>• Do topographic hazards exist?</li> <li>• Does enough information exist to establish a plan of attack?</li> <li>• Do other dangers exist?</li> </ul>		
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To Reduce the Risks – Post lookouts until the fire is sized up and escape routes and safety zones are established, or back off if the situation is too complex!

Situation	Considerations	Yes	No
<p><b>Unfamiliar with Weather and Local Factors Influencing Fire Behavior</b></p>	<ul style="list-style-type: none"> <li>• Can you ask questions of local experts?</li> <li>• Does the operational period plan give you adequate weather and information?</li> <li>• Can you get information from resources that have been on the fire?</li> <li>• Is there any other way to obtain information?</li> </ul>		

To Reduce the Risks – Base all actions on current and expected fire behavior. **Post lookouts, establish escape routes and safety zones!! Take Extra Caution.**

<p><b>Uninformed on Strategy, Tactics or Hazards</b></p>	<ul style="list-style-type: none"> <li>• Can communications be established to find out?</li> <li>• Can scouting safely identify potential hazards?</li> <li>• Have strategy, tactics or hazards changed since last informed?</li> <li>• Can you get a briefing from your supervisor?</li> </ul>		
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To Reduce the Risks – **Post lookouts, establish safety zones and escape routes.** Consider backing off until you are informed. Don't leave a staging area or briefing until you have all the pertinent information.

<b>Instructions and Assignments NOT Clear</b>	Giving Instructions	<ul style="list-style-type: none"> <li>• Did they ask questions?</li> <li>• Did they take notes?</li> <li>• Did they repeat them back?</li> <li>• Did you give all the necessary information: task, location, communications, hazards, who, when, etc.</li> </ul>		
	Receiving Instructions	<ul style="list-style-type: none"> <li>• Did you really listen?</li> <li>• Did you understand the assignment, location, and the nature and location of hazards?</li> </ul>		

To Reduce the Risks—Take the time to get it right! **You must know the location of the assignment, what** is to be done, **who** you are to report to and **how** often to report, **when** are you expected to complete the assignment, any deadlines, any hazards, communication plan, weather and fire behavior, status of adjoining forces.

<b>No Communication Link w/ Crew Members Supervisors &amp; Adjoining Forces</b>	<ul style="list-style-type: none"> <li>• Can communication be established?</li> <li>• Is the communication triangle complete?</li> </ul>		
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Only if the situation is simple and safe should operations continue without communications. **If the situation is complex – back off.**

Situation	Considerations	Yes	No
<b>Constructing Line without a Safe Anchor Point</b>	<ul style="list-style-type: none"> <li>• Can you hold the line without the fire hooking under you?</li> <li>• Are there adequate safety zones and escape routes?</li> <li>• Can you develop your starting point into an anchor point?</li> <li>• Have you posted good lookouts?</li> <li>• Do you have good communications?</li> </ul>		

To Reduce the Risks—**Start the line in another location.**

<b>Attempting a Frontal Assault on a Fire</b>	<ul style="list-style-type: none"> <li>• Has the fire been scouted and sized up?</li> <li>• Is your position defensible?</li> <li>• Are escape routes and safety zones adequate?</li> <li>• Do you have an anchor point?</li> <li>• Do you have adequate resources to complete the assault?</li> <li>• Are you informed on strategy, tactics, and hazards?</li> <li>• Is the terrain favorable to holding the fire?</li> </ul>		
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To Reduce the Risks—reassess your tactics, **post lookouts!**

<p><b>Building Fireline Downhill with Fire Below</b></p>	<ul style="list-style-type: none"> <li>• Has the area been scouted for fire perimeter and behavior?</li> <li>• Will wind direction be at your back? Will it stay at your back?</li> <li>• Is the area free of chimneys and gullies?</li> <li>• Are there adequate safety zones and escape routes as you progress downhill?</li> <li>• Can you carry your burnout downhill as you go to provide an anchor point and safety zones?</li> <li>• Have lookouts been posted?</li> <li>• Do you have good communications, especially with lookouts and crews working towards you?</li> <li>• Can the line be completed and burnt out before the fire reaches the line?</li> <li>• Do you have adequate resources to complete the assignment?</li> <li>• Is the aerial support available if needed?</li> <li>• Has everyone been briefed on the assignment, fire behavior, weather, communications, escape routes and safety zones, hazards, and tactics?</li> </ul>		
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If NO to any of these questions – consider other tactics, **provide for safety first.**

Situation	Considerations	Yes	No
<p><b>Unburned Fuel Between You and the Fire</b></p>	<ul style="list-style-type: none"> <li>• Can you see the fire?</li> <li>• Is fire spread in a direction away from you?</li> <li>• Will your position be defensible when the fire reaches you?</li> <li>• Is your line anchored?</li> <li>• Are your escape routes and safety zones adequate?</li> </ul>		

To Reduce the Risks—**post lookouts, consider a different location to make a stand.**

<p><b>Cannot See the Main Fire, NOT in Contact with Anyone Who Can</b></p>	<ul style="list-style-type: none"> <li>• Are you informed on expected fire behavior and weather?</li> <li>• Do you have safety zones and escape routes?</li> <li>• Will you receive adequate warning to go to your safety zone?</li> <li>• Are you informed on strategy, tactics, and hazards?</li> </ul>		
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To Reduce the Risks – **re-evaluate your position, limit your exposure!!**

<p><b>On a Hillside Where Rolling Material Can Ignite Fuel Below</b></p>	<ul style="list-style-type: none"> <li>• Can you locate/construct a line to prevent material rolling below?</li> <li>• Will you get enough warning of rolling material to prevent being hit by it?</li> <li>• Can you see where any material that rolls below you goes and what it does?</li> <li>• Is the area free of large amounts of flashy fuels?</li> <li>• Is the area free of chimneys, gullies and steep slopes?</li> <li>• Do you have two escape routes so you can go either way?</li> </ul>		
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To Reduce the Risks – **post lookouts**, consider locating line in a defensible position!!

<p><b>Weather is Getting Hotter and Drier</b></p>	<ul style="list-style-type: none"> <li>• Do you have a workable plan if fire behavior increases?</li> <li>• Do you have a plan if the fire reaches you earlier than expected?</li> <li>• Is the method of spread the same?</li> <li>• Are your escape routes and safety zones still adequate?</li> <li>• Will you have adequate warning if you need to use the safety zones?</li> </ul>		
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Take weather observations more frequently, **Base ALL Actions on Current and Expected Fire Behavior**. As fire behavior increases you must re-examine your plan and risk analysis. Post more lookouts, if more warning time is needed.

Situation	Considerations	Yes	No
<p><b>Wind Increases or Changes Direction</b></p>	<ul style="list-style-type: none"> <li>• Is the wind at your back? Will it stay at your back?</li> <li>• Do you know what you will do if the fire reaches you faster than expected?</li> <li>• Are escape routes and safety zones still adequate?</li> <li>• Do you still have adequate warning time?</li> <li>• Will you be able to handle any additional spotting?</li> <li>• Is there little probability of the fire hooking around you?</li> <li>• Can you still carry out your strategy and/or tactics?</li> </ul>		

Re-examine your situation. **Base ALL Actions on Current and Expected Fire Behavior!** If fire behavior increases you must re-examine your plan and risk analysis.



<p><b>Getting Frequent Spot Fires Across the Line</b></p>	<ul style="list-style-type: none"> <li>• Can you handle increased spotting?</li> <li>• Do you have a plan for long range spotting?</li> <li>• Is help available if necessary?</li> <li>• If fire behavior increases is your position still defensible?</li> <li>• Do you have more than one safety zone in case one gets cut off?</li> <li>• Do the primary lookouts have a good view of the situation?</li> <li>• Is the primary burning period ending?</li> </ul>		
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To Reduce the Risks – **Be ready to retreat.** Keep your guard up even if spotting has not occurred for a few hours.

<p><b>Terrain and Fuels Make Escape To Safety Zones Difficult</b></p>	<ul style="list-style-type: none"> <li>• Does the crew's condition allow for fast travel?</li> <li>• Will you get adequate warning to make it to your safety zone?</li> <li>• Can escape routes be improved to make travel faster? Marked?</li> <li>• Will posting more lookouts give adequate warning?</li> </ul>		
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To Reduce the Risks – Consider other tactics that will allow you to be in a safer location!

<p><b>Taking a Nap Near the Fireline</b></p>	<ul style="list-style-type: none"> <li>• Are lookouts posted?</li> <li>• Is the area free of hazards?</li> <li>• Are you still within agency work and rest policies?</li> <li>• Does your crew need a break? Have they been pushed too hard?</li> </ul>		
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The more "NO" answers, the higher the probability of being entrapped!! If the plan depends on everything going perfectly, ask yourself, "What if? Is something else better?" Ask yourself, "What am I protecting?" Is the value as high as the risk of exposing your crew(s) to a situation with a high possibility and high probability of entrapment?

In situations of low complexity you may be able to do your risk analysis in your head. As the situation gets more complex, i.e., more hazards or higher probabilities, do your risk analysis on paper to make sure you recognize the potential danger, and take proper steps to ensure safety.

## Safety Zones

Identification of a safety zone is one of the primary responsibilities of any wildland firefighter working on or near the fireline. One aspect of firefighter safety is safety zone size. The following can be used in making safety zone selection:

- Calculations indicate that for most fires, safety zones must be wider than 50 meters to ensure firefighter survival.
- The calculation to determine safety zone radius is four times the maximum flame height plus 50 square feet per firefighter or an additional four feet of radius per firefighter. This calculation provides the radius of the safety zone, meaning the safety zone diameter should be twice the value of the above formula.
- If potential for the fire to burn completely around the safety zone exists, the diameter should be twice the values indicated above.
- Factors that will reduce safety zone size include reduction in flame height by thinning or burnout operations, shielding the safety zone from direct exposure to the flame by locating it on the lee side of ridges or other geographic structures, or reducing flame temperatures by applying fire retardant to the area around the safety zone.
- Full firefighter protective clothing, helmet, and neck protection must be worn.
- Keep in mind that these guidelines do not address convective energy.

## Common Denominators of Fatality Fires

- Most incidents happen on the smaller fires or on isolated portions of larger fires.
- Most fires are innocent in appearance before the “flare-up” or “blow-ups.” In some cases, tragedies occur in the mop-up stage.
- Flare-ups generally occur in deceptively light fuels.
- Fires run uphill surprisingly fast in chimneys, gullies, and on steep slopes.
- Some suppression tools, such as helicopters or airtankers, can adversely affect fire behavior. The blasts of air from low flying helicopters and airtankers have been known to cause flare-ups.

## Downhill/Indirect Line Construction

Fireline can be constructed with handtools, mechanized equipment, water or retardant. The only reliable line is one that has been cut to mineral soil, that will catch rolling material, AND that is on the fire's edge.

**As a general rule, construct line moving uphill.** If there is no practical alternative to constructing line downhill, do so with extreme caution. Many firefighters have lost their lives attacking wildland fires from above. The following are guidelines for downhill line construction. They also apply to fireline that is being constructed some distance from the fire's edge where fire behavior cannot be observed and responded to.

- The decision is made by a competent firefighter after thorough scouting.

- Downhill line construction should not be attempted when fire is present directly below the proposed starting point.
- The fireline should not lie adjacent to a chute or chimney that could burn while the crew is nearby.
- Communication must be established between the crew working downhill and crews working toward them from below. When neither crew can adequately observe the fire, communications will be established between the crews, supervising overhead, and a lookout posted where the fire's behavior can be seen.
- The crew must be able to rapidly reach a zone of safety from any point along the line, if the fire unexpectedly crossed below them.
- A downhill line must be securely anchored at the top. Avoid underslung line, if practical.
- Line firing should be done as the line progresses, beginning from the anchor point at the top. The burned out area provides a continuous safety zone for the crew and reduces the likelihood of fire crossing the line.
- Beware – avoid the Watch Out Situations.
- Comply with all Standard Fire Orders.

### **Unexploded Ordnance (UXO)**

Millions of acres of property in the United States contain unexploded ordnance (UXO), most of which is 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 is found in the environment in many different ways depending in part on the specific type of ordnance, when and where it was deployed, how it was deployed, and activities that may have taken place at the locations since deployment.

UXO may also be found fully intact or in parts or fragments. All UXO, whether intact or in parts, presents a potential hazard and should be treated as such. 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.
- Never transmit radio frequencies (walkie talkies, citizens' band radios).
- Never attempt to remove anything near a UXO.
- Never attempt to touch, move, or disturb a UXO.
- Clearly mark the UXO area.
- Avoid any area where UXO is located.
- Keep a minimum of 500 feet away from any UXO that is on fire.

Report discovery of UXO to your immediate supervisor.

### **Standard Safety Flagging**

NWCG has established the following standard for wildland fire (prescribed and suppression) activities.

**Safety Zones/Escapes Routes** lime green, florescent, biodegradable 1” wide (NFES #0258). When flagging no longer shows valid safety zones/escape routes, remove it **IMMEDIATELY**.

**Hazards** yellow w/black diagonal stripes, florescent, biodegradable 1” wide (NFES #0267)

## **Safety for Managers Visiting Fires**

The BLM's *Fire and Aviation Program-wide Management Review Report* outlines the need for Agency Administrators to become actively involved in the management of wildfires. The report goes on to discuss the performance requirements, one of which is to “personally visit an appropriate number of escaped fires each year.” In preparation for these visits, it is important to have the proper PPE. Listed below are a few scenarios and the required PPE. If you have any questions, please discuss them with your fire and aviation management staff.

### **Visit to Fire Camp**

The requirements for PPE at fire camp are the same as all field locations. Refer to *BLM Manual Handbook* 1112-2, "Safety and Health for Field Operations," page 16, 3.3. For general working conditions, the minimum requirements are:

- 8" leather lace boots with non-slip soles and heels
- long trousers
- long-sleeve shirt

The BLM field uniform is excellent; however, for more flexibility you may choose to wear the aramid fire shirts and trousers or flight suit.

### **Visits to the Fireline**

When visiting the fireline, there are three major considerations: PPE, physical fitness, and training requirements or escort.

#### ***PPE Required***

- 8" leather lace boots with non-slip soles and heels
- long trousers made of flame-resistant material
- long-sleeve shirt made of flame-resistant material
- hard hat
- leather gloves
- fire shelter and hand tool
- water canteen/personal First Aid Kit

***Physical Fitness*** To visit the fireline, there are no specific physical fitness requirements, if escorted (escorts must be qualified at the single resource boss (crew or engine) level). However, you must be able to walk in mountainous terrain and be in good physical condition with no known limiting conditions. If you are not physically active and in good health, consider a medical examination, including an exercise electrocardiogram. If a manager visits a fireline unescorted, they must meet the physical fitness level of moderate.

***Training Requirements*** Managers who are escorted are not required to have any previous training. However, if a manager is not escorted, he/she must have successfully completed the following:

- Introduction to Fire Behavior (S-190), 16 hours
- Firefighter Training (S-130), 32 hours
- Standards for Survival, video/workbook, 8 hours
- Your Fire Shelter, pamphlet
- Common Denominators of Fire Behavior on Tragedy & Near-Miss Forest Fires, booklet

### Helicopter Observation Flights

Managers who take helicopter flights to observe fires must receive a passenger briefing and wear the PPE listed below.

#### **PPE Required**

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

**Training Requirements** can be met by any of the following courses: B1 Basic Helicopter Safety, B3 Basic Helicopter/Airplane Safety; or, S-270 Basic Air Operations. Occasional passengers have no training requirement, but a qualified flight manager must supervise loading and unloading of passengers.

### Fixed-Wing Observation Flights

Managers who take fixed-wing flights to observe fires must meet the following minimum requirements:

- Flight level must not drop below 500' AGL
- Passenger briefing
- No PPE is required

**Training Requirements** can be met by any of the following courses: B2 Basic Airplane Safety; B3 Basic Helicopter/Airplane Safety; or, S-270 Basic Air Operations.

## Prescribed Fire Safety

For more information on Prescribed Fire see *Prescribed Fire Management Handbook*, H9214-1, U.S. Department of the Interior, Bureau of Land Management.

### Safety Responsibility

Every person involved in a prescribed fire project is responsible for identifying safety issues and concerns.

A personnel briefing will be conducted prior to any prescribed fire activity to ensure that those people involved understand how the project will be executed and what their individual assignments are. Briefings must cover safety considerations for both known site specific hazards and potential hazards. The development of a briefing checklist which is attached to the prescribed fire plan is required. A JHA will be completed and attached to each prescribed fire plan. Additional components of the Prescribed Fire Plan that have a direct impact on safety are: the go/no go checklist, and the communication plan.

## Training and Qualifications

A discussion of prescribed fire training and qualifications can be found in the training and qualifications chapter.

### PPE

All personnel on a prescribed fire project will be equipped with required PPE appropriate to their position or as identified in a JHA. For holding and ignition personnel the minimum PPE (unless otherwise identified in the JHA) is the same as that required for wildland fire assignments.

### Smoke Exposure

Exposure to smoke during prescribed fire operations can be a significant safety concern. Smoke exposure on prescribed fires, especially in the holding and ignition positions, often exceeds that on wildfires.

- Use equipment rather than people, when possible, in holding areas (sprinklers, foam, etc.)
- Design burn plans with “maximum allowable perimeter” to permit minor slopovers.
- Minimize mop-up whenever possible (consider regulatory conflicts regarding hazard tree removal, endangered species, and so forth in risk assessments for fire safety and health).
- Change ignition times and firing patterns to minimize smoke impacts on lighters.
- Address smoke impacts in the JHA.
- Rotate personnel out of heavy smoke areas.
- Adjust prescriptions where possible to reduce smoke by providing more complete combustion.

### Hazardous Materials

**Purchase** 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) should be obtained at time of purchase.**

**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, material safety data sheets (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** Make every attempt not to over purchase 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 material safety data sheet.

**Classification** NFPA 704 HazMat Classification descriptions can be found in the *Interagency Incident Response Pocket Guide*.



## 5 – Training & Qualifications

### Policy

It is BLM policy that only personnel who are qualified will be assigned duties in wildland fire suppression or prescribed fire. It is also BLM policy to work jointly with other federal, state, and local agencies, through the National Wildfire Coordinating Group (NWCG), to establish minimum fire qualification standards acceptable to all agencies. Interagency standards allow a cost-effective exchange of personnel and resources and reduce duplication among the agencies. It is BLM policy to adopt the NWCG standard. BLM also participates with other Department of Interior (DOI) agencies through the Interior Fire Coordination Committee (IFCC).

### Introduction

Standards for DOI agencies, which may exceed the minimum standards established by NWCG, are coordinated through IFCC. Such additional standards will be approved by the Director, Office of Fire and Aviation, and implemented through the Incident Qualification and Certification System (IQCS).

### Certification & Record Keeping

The BLM Manual Section 9215, *Fire Training and Qualifications*, identifies the training and experience requirements for BLM personnel to perform jobs associated with the fire management program. The manual section also establishes state and field office responsibility for maintaining fire qualification records and position certification.

Instruction Memorandum 95-2001 established the IQCS as the DOI's fire qualifications and certification record keeping system. The master file report provided by the IQCS meets the bureau requirement for maintaining fire qualification records. The system is designed to provide managers at the local, state, and national levels with detailed qualification, experience, and training information needed to certify employees in wildland and prescribed fire positions.

It is recommend that a hardcopy file folder be kept for each employee. The contents may include: training certificates, work capacity test record, evaluations

from assignments, task book verification, yearly update forms from IQCS, and an Individual Employee Master File Report from IQCS

The Unit Fire Management Officer (FMO) will review employee's experience, training, and completed task books prior to approving a certification for a position. Field office manager or designee is responsible for certifying personnel to serve in wildland and prescribed fire positions. Agency certification is issued in the form of an incident qualification card (Red Card) certifying that the individual is qualified to perform in a specified position. The Red Card must be reviewed for accuracy and signed by the approving official. The Red Card is valid for the current field season only. Work capacity testing and subsequent re-issuance of the Red Card must occur prior to each field season and assigning employees to wildland or prescribed fire activities. Issuing Red Cards to EFF-paid employees is at the discretion of the local unit, although documentation of training and physical fitness must still be accomplished. All Red Cards issued to BLM employees, with the exception of EFF-paid, will be printed using the DOI Shared Application Computer System (SACS) IQCS.

Each state director will designate an employee as the state fire qualifications administrator. This person ensures all fire experience, fire training, and task books for employees in his/her state are accurately recorded in the IQCS. Records should be modified as changes occur. All records must be updated annually.

## Qualification System

BLM minimum qualification standards in wildland and prescribed fire are developed jointly with other federal and state agencies through NWCG. These qualification standards are published in the *NWCG Wildland and Prescribed Fire Qualification Subsystem Guide*, PMS 310-1.

### Annual Refresher Training

*BLM Manual* Section 9215.22, "Refresher Training," requires all personnel participating in fire suppression or prescribed fire duties to receive annual safety refresher training which includes, at a minimum, training in the 10 Standard Fire Orders; 18 Watch Out Situations; Lookouts, Communications, Escape Routes, and Safety Zones (LCES); and hands-on fire shelter inspection and deployment practice. It is also recommended that refresher training include reviews of recent entrapments, near entrapments, and deployments and findings from safety research efforts.

### Non-NWCG Agencies

Personnel from other agencies who do not subscribe to NWCG qualification standards may be used on BLM-managed fires. BLM fire managers must ensure

these individuals are only assigned to duties commensurate with their abilities, agency qualifications, and equipment capabilities.

## Position Task Books

The home unit (local office) is responsible for implementing the position task books (PTB). These responsibilities are stated in the *Position Task Book Administration*, Appendix A, PMS 310-1. They are:

- Select trainees, based on the needs of the local office and agreements with cooperators.
- Ensure that trainees have all the required prerequisite training and experience as stated in the 310-1.
- Initiate and issue the PTB to the trainee, explain the purpose of the PTB and the training, qualification and certification process to ensure that the trainee clearly understands the responsibilities.
- Ensure that the trainee has the opportunity to acquire the knowledge/skills necessary to perform the position.
- Provide opportunities for non-incident ("O") task evaluation, for position performance assignments on local incidents, and/or make the trainee available for assignments to large incidents. The local office must provide an evaluator for local incidents.
- Track the progress of the trainee. This is a responsibility the local office shares with the trainee.
- Review and confirm the completion of the PTB and make determination of certification.
- Issue proof of certification as required by 310-1. This proof is normally an incident qualification card (red card) issued by utilization of the IQCS.

The employee (trainee) is responsible for using the PTB. These responsibilities are stated in the *Position Task Book Administration*, Appendix A, 310-1. They are:

- Review and understand the instruction in the PTB.
- Meet with trainer/coach and/or evaluator and identify goals and objectives for an assignment.
- Ensure they are ready to perform the tasks of the position prior to undertaking a position performance requirement.
- Provide background information (training and experience) to an evaluator.
- Complete the PTB within three years from the time the first task is evaluated until the task book is completed.
- Make sure that a qualified evaluator initials all tasks as they are completed and completes the appropriate evaluation record.
- Safeguard the PTB.
- Provide a copy of the completed PTB to the local office. The original is kept in the trainee's personal records.

### **Qualification and Certification Committee**

It is recommended that a qualification and certification committee be established for each field office with fire management responsibilities. In those areas with c other federal, state, or local agencies, an interagency qualification and certification committee should include representatives from each unit. These qualification and certification committees provide management oversight and review of the wildland and prescribed fire positions under their jurisdiction. These tasks are accomplished through the committee by:

- Certifying that qualifications generated by IQCS or other agency systems for employees are valid by reviewing the training and experience of each employee.
- Determining if each employee possesses the personal characteristics necessary to perform the wildland and prescribed fire positions in a safe, efficient, and effective manner.
- Making recommendations to the appropriate agency administrator for signature. The agency administrator or designee is responsible for final signature.
- Developing interagency training requirements and sponsoring courses that can be offered locally.

### **Physical Fitness**

Our concern for employee safety and health has prompted screening procedures to make sure only the fit are assigned to physically demanding fire management activities. Unfit persons can quickly become a hazard to themselves and to their co-workers.

Field office managers are responsible for ensuring the overall physical fitness of the firefighters. By evaluating regular and project work assignments and overall crew physical condition the manager may authorize employees who are available and serving in wildland or prescribed fire positions that require a physical fitness rating of arduous one hour each day for fitness conditioning as needed.

**Furthermore, individuals who have a position with an arduous physical requirement may be periodically tested during the fire season to ensure they are retaining the required level of fitness and conditioning.**

### **Physical Training Conditioning**

Fitness conditioning periods may be identified and structured to include aerobic and muscular exercises. Team sports are not authorized for fitness conditioning. *Fitness and Work Capacity*, Second Edition, chapters 7, 8, 9 provides excellent guidance concerning training specifically for the pack test, aerobic fitness programs, and muscular fitness training.

## Work Capacity Tests

The NWCG has approved the work capacity tests. The work capacity tests have been adopted by the BLM as the official method of assessing wildland firefighter fitness level.

Field office managers are also responsible for ensuring that the health screen is administered prior to initiating a physical training program and/or the work capacity fitness test. Work capacity tests are administered annually to all employees who will be serving in wildland or prescribed fire positions that require a fitness score. The work capacity tests must be administered and passed prior to assigning the employee to wildland or prescribed fire duty. Accurate documentation including the Health Screen and Work Capacity Test Record must be accomplished for all participating employees. This documentation must be retained until the next testing. Test results must also be entered in the IQCS annually to update the fitness score and fitness date that will appear on the Red Card. Physical fitness dates entered in IQCS will reflect the date the employee passed the fitness test.

### Work Capacity Test Administration

**Instructions** Studies of wildland firefighting clearly show the link between fitness and work performance. Fit workers can do more work with less fatigue and still have a reserve to meet unforeseen emergencies. They perform better in a hot environment and recover faster from adverse firefighting conditions like long shifts and reduced rest. In short, fitness is the most important factor in work capacity.

Job-related work capacity tests (WCT) are used to determine a firefighter's level of fitness for positions identified in the *NWCG Wildland and Prescribed Fire Qualifications Subsystem Guide*, 310-1 and agency specific positions. The 310-1 defines four fitness levels—arduous, moderate, light and none. The arduous, moderate, and light fitness levels require an individual to demonstrate their ability to perform the fitness requirements of the position.

### Work Capacity Test

Work Category	Test	Distance	Weight	Time
Arduous	Pack Test	3 miles	45 lb.	45 min.
Moderate	Field Test	2 miles	25 lb.	30 min.
Light	Walk Test	1 mile	none	16 min.

**Arduous** – Duties involve field work requiring physical performance with above average endurance and superior conditioning. These duties may include an occasional demand for extraordinarily strenuous activities in emergencies under adverse environmental conditions and over extended periods of time. Requirements include running, walking, climbing, jumping, twisting, bending, and

lifting more than 50 pounds; the pace of work typically is set by the emergency conditions. (NWCG 310-1.)

**Moderate** – Duties involve field work requiring complete control of all physical faculties and may include considerable walking over irregular ground, standing for long periods of time, lifting 25 to 50 pounds, climbing, bending, stooping, twisting, and reaching. Occasional demands may be required for moderately strenuous activities in emergencies over long periods of time. Individuals usually set their own work pace. (NWCG 310-1).

**Light** – Duties mainly involve office type work with occasional field activity characterized by light physical exertion requiring basic good health. Activities may include climbing stairs, standing, operating a vehicle, and long hours of work, as well as some bending, stooping, or light lifting. Individuals can usually set their own pace. (NWCG 310-1)

**None** – Duties are normally performed in a controlled environment, such as an incident base or camp.

### ***Test Administration***

- 1) Job hazard analysis (JHA) shall be developed and approved for each field office prior to administrating the work capacity test (see generic JHA below).
- 2) A health screen will be administered prior to initiating a physical training program and/or the work capacity fitness test with the following objectives:
  - To identify, prior to the work capacity testing, at risk personnel
  - To identify existing injuries or illness and minimize the probability of new injuries
  - To establish the need for a medical evaluation
- 3) Administer the test.
- 4) Documentation is accomplished by utilizing the Health Screen and Work Capacity Test Record (see below). These documents must be retained until the next testing.

**Health Screen Questionnaire** The purpose is to identify individuals who may be at risk in taking the work capacity test and recommend an exercise program and/or medical evaluation prior to the work capacity test.

Prior to taking the WCT employees are required to answer the following questions. The questions were designed, in consultation with occupational health physicians, to identify individuals who may be at risk in taking the work capacity test. The information on this health screen is considered confidential and must be filed appropriately.

Solicitation of this information is authorized by Title 5 U.S. Code Section 3301, which provides for a determination of an individual's fitness-for-duty.

Yes No

- \_\_\_ \_\_\_ 1) During the past 12 months have you at any time (during physical activity or while resting) experienced pain, discomfort or pressure in your chest?
- \_\_\_ \_\_\_ 2) During the past 12 months have you experienced difficulty breathing or shortness of breath?
- \_\_\_ \_\_\_ 3) Are you currently under a doctor's care for a heart or lung related condition?
- \_\_\_ \_\_\_ 4) Have you ever been diagnosed with, and are you currently being treated for, high blood pressure?
- \_\_\_ \_\_\_ 5) Do you have a blood pressure with systolic (top #) greater than 140 or diastolic (bottom #) greater than 90?
- \_\_\_ \_\_\_ 6) Do you have a resting pulse greater than 100 beats per minute?
- \_\_\_ \_\_\_ 7) Do you have a bone or joint condition that could be made worse by a change in your physical activity?
- \_\_\_ \_\_\_ 8) Do you know of any other medical or physical reason you should not take the work capacity test?
- \_\_\_ \_\_\_ 9) Do you have asthma, diabetes, epilepsy or elevated cholesterol?

A yes answer will only mean that a physical and/or functional fitness evaluation is required prior to administering the test. The doctor will then make a determination regarding the administration of a Work Capacity Test.

I understand that, if I need to be evaluated, it will be based on the fitness requirements of the position(s) for which I am qualified.

Participant \_\_\_\_\_ Administrator \_\_\_\_\_ Date \_\_\_\_\_

**Work Capacity Test Record** Units will use this WCT for documenting administration of the WCT to all job applicants and employees. This documentation must be retained until the next WCT is administered. Units may also be requested to provide data from these records to assist in the evaluation of the WCT process.


The information on this work capacity test record is considered confidential and must be filed appropriately. The identity of the individual must be protected.

Solicitation of this information is authorized by Title 5 U.S. Code Section 3301, which provides for a determination of an individual's fitness-for-duty.

<b>To be completed by employee:</b>			
Name (Last, first): _____		Where employed: _____	
Date of birth: _____	Height: _____	Weight: _____	
Date test taken: _____	Test administered by: _____ (print name)		
ICS position for which test is required (highest needed) _____			
Performance level needed (circle one): Arduous      Moderate      Light			
Type of test taken (circle one): Pack Test      Field Test      Walk Test			
<b>Work Capacity Test Descriptions:</b>			
	Pack Test	Field Test	Walk Test
Pack weight:	45 lbs	25 lbs	none
distance:	3 miles	2 miles	1 mile
time:	45 minutes	30 minutes	16 minutes
<b>To be completed by test administrator:</b>			
Test result time: _____			
Employee passed test (circle one): yes / no			
I certify that the pack test was administered according to Bureau guidelines.			
_____ (Signature of Test Administrator)		_____ (Title)	_____ (Date)

revision 2 (Feb 1998)



U.S. Department of the Interior Bureau of Land Management		Date:	New: <input type="checkbox"/> Revised: <input type="checkbox"/>
 JOB HAZARD ANALYSIS	Page 1 of 4	Reviewed by: (Safety Mgr)	
	Field Office/Work Group	Supervisor:	Qual, Trng, Experience Reqd:
This JHA must be reviewed, approved, and signed by the Agency Administrator:			
Name:		Title:	Date:
BASIC JOB STEPS	POTENTIAL HAZARDS	SAFE JOB PROCEDURES	
Work Capacity Testing	Physical Overexertion	1. Follow testing procedures provided in BLM instruction memorandum.	
		2. Provide prospective test subjects information about the test and describe how to prepare for it.	
		3. Test subjects complete the Health Screen. Only appropriate responses of the prospective subjects to the Health Screen will result in administering the Work Capacity Test.	
		4. Brief test subjects about the test just prior to the test -- answer questions concerning the test. Make them understand they are to quit and get help from one of the Test Administrators on the course if they begin to feel ill during the test.	
		5. Test Administrators monitor subjects for distress during test. Test Administrator is to terminate test if indicated by level of subject distress.	
		6. Provide prospective test subjects official time for fitness training where policy permits.	
Work Capacity Testing	Physical Overexertion	7. Schedule tests when environmental conditions are most favorable.	
		8. Have a person currently qualified in first aid and CPR on site when testing is done with first aid supplies and equipment.	
		9. Have unit medivac plan and make sure Test Administrators know how to activate it.	

BASIC JOB STEPS	POTENTIAL HAZARDS	SAFE JOB PROCEDURES
		10. Make sure test subjects do not exceed a walking pace.
		11. Ensure test subjects are properly hydrated.
Work Capacity Testing	Strains and Sprains	1. Provide information to prospective subjects describing how to get into shape for the tests.
		2. Provide prospective subjects official time for fitness training where policy permits.
		3. Brief subjects about the test just prior to beginning.
		4. Monitor subjects for indications of distress and terminate the test for them.
		5. Ensure test subjects have comfortable footwear that provides adequate support and protection to feet and ankles.
		6. Give subjects time to adjust packs for comfort prior to beginning the test.
		7. Provide time prior to starting the test for subjects to warm up and stretch.
		8. Have subjects cool down and stretch after the test.
		9. Make sure the test subjects do not exceed a walking pace.
Work Capacity Testing	Heat Stress	1. Make sure Test Administrators understand the effects of exercising in heat, can recognize the symptoms of heat stress and know how to treat it.
Work Capacity Testing	Heat Stress	2. Where possible, schedule tests for the most favorable environmental conditions. Use the Heat Stress chart, page 29 of <i>Fitness and Work Capacity</i> , Second Edition. Avoid the "High" range.
		3. Inform prospective test subjects they need to dress for the conditions and include the information in the pre-test briefing.

BASIC JOB STEPS	POTENTIAL HAZARDS	SAFE JOB PROCEDURES
		4. Make sure test subjects are aware of the need for acclimatization. Provide time for employees to become acclimatized if conditions of their employment permit.
		5. Test Administrators include heat stress information in the test briefing if appropriate.
		6. Provide water at key points along the test course if conditions dictate.
		7. Test Administrators monitor all test subjects for signs of heat stress, terminate test if indicated, and be prepared to provide treatment needed.
Work Capacity Testing	Cold Temperature	1. Make sure Test Administrators know symptoms of cold-related physical effects and are prepared to treat them.
		2. Inform prospective test subjects the need to dress for the conditions and include information in the pre-test briefing.
		3. Locate an indoor facility suitable for testing if conditions warrant.
		4. Postpone testing if conditions warrant.
Work Capacity Testing	Slippery Course Conditions (ice, snow, mud)	1. Locate a suitable test surface. Consider indoor facility, plowed airport, plowed road or other safe area.
		2. Postpone testing if conditions warrant.
		3. Test subjects wear footwear with good traction.
Work Capacity Testing	Traffic	1. Select test course without traffic.
		2. Arrange for traffic control to eliminate traffic hazard.

BASIC JOB STEPS	POTENTIAL HAZARDS	SAFE JOB PROCEDURES
Work Capacity Testing	Traffic	3. Make sure test subjects are briefed about traffic hazard and controls implemented prior to the test.
Work Capacity Testing	Pack Rubbing, Chafing, or Straining Subjects	1. Make sure test subjects have practiced with a pack and have become work hardened to carry a pack.
		2. Recommend upper body clothing that protects from pack rubbing.
		3. Makes sure subjects have an opportunity prior to testing to adjust and try out the pack.
		4. Terminate testing for subjects struggling to carry the pack or maintain a pace adequate to complete the test successfully.
		5. Permit subjects to use a self-provided pack that meets the applicable weight requirement.

## Medical Examinations

Establishing medical qualification programs, as stated in 5 CFR 339, provides **uniform** and **consistent** medical standards in order "to safeguard the health of employees whose work may subject them or others to significant health or safety risks due to occupational or environmental exposure or demands." A DOI sponsored multi-disciplinary team of medical, safety, human resources and wildland fire experts will establish a consensus medical standard for wildland and prescribed firefighters. This standard will be developed as a comprehensive program designed to be consistent and defensible with all current federal regulations. A draft standard is to be developed by September 15, 1998, with implementation by the summer of 1999. The purpose of the following is to establish interim policy and associated guidance until department or inter-departmental policy is provided.

Agency administrators and supervisors are responsible for the occupational health and safety of their employees performing wildland and prescribed fire activities. They may require a medical examination at any time. At a minimum, the bureau interim policy requires:

1. All employees who participate in wildland or prescribed fire activities requiring a fitness level must answer the questions on the health screen

prior to taking their work capacity test. If indicated, a medical exam will be required prior to administration of the test.

2. All permanent, career seasonal, and student career experience program employees, 40 years of age and older, who participate in wildland or prescribed fire activities requiring a fitness level of **arduous** must have a physical every three years or as indicated by the health screen. The physical will include a stress EKG.
3. All newly hired temporary employees who participate in wildland or prescribed fire activities requiring a fitness level of **arduous** must have a pre-employment physical to determine their suitability prior to their initial entry on duty. Temporary rehires who participate in wildland or prescribed fire activities requiring a fitness level of arduous will receive a physical exam every three years.

Medical examinations are a diagnostic tool that can give an early warning to employees involved in wildland or prescribed fire activities about potential health problems. By providing specific guidance in this area, the bureau will not only be providing for the well-being of valued employees, but also meet the bureau's need to determine an individual's capacity for arduous work.

### **Medical Examination Components**

Medical History	Vision
Hearing	Heart and Blood Vessels
Nose, Mouth, and Throat	Teeth
Lungs	Abdomen
Genitourinary/Metabolic	Spine
Extremities	Nervous System
Skin	Other Defects

The following Certificate of Pre-appointment Medical Examination for Firefighter may be used to supplement the SF-78 for arduous temporary and permanent positions.

UNITED STATES  
DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT

**CERTIFICATE OF PRE-APPOINTMENT MEDICAL EXAMINATION FOR  
FIREFIGHTER**

(Supplements SF-78 for arduous temporary and permanent positions)

**Part A. TO BE COMPLETED BEFORE EXAMINATION BY APPOINTING OFFICER**

<b>OFFICE CODE:</b>	<b>POSITION TITLE:</b>
---------------------	------------------------

**BRIEF DESCRIPTION OF WHAT POSITION REQUIRES EMPLOYEE TO DO**

<b>Wildland Firefighting Tasks</b>	<b>Energy cal/min</b>	<b>Cost mL/kg · min</b>
<b>Using a handtool</b> (for instance, digging or chopping with a Pulaski, combitool, McLeod, or brush hook)	7.5	22.5
<b>Lifting and carrying light loads</b> (examples are clearing loose brush or trees, deploying or repositioning hose, throwing dirt with a shovel, firing operations, or structure protection)	6.8	20.0
<b>Chain sawing</b> (felling, bucking, limbing)	6.2	18.0
<b>Packing heavy loads</b> (pumps, hose packs, 5-gallon water bags)	7.5 flat 10.0 hill	22.5 29.4
<b>Hiking with light loads</b> (field pack and tools)	6.5	19.0
<b>Performing under adverse conditions</b> (including long work shifts; rough, steep terrain; heat, cold, altitude, smoke; insufficient food, fluid replacement, sleep)	6.5-10+	19-30
<b>Emergency responses</b> (fast pull-out to safety zone, rescue or evacuation assistance to others)	10.0+	29.4
<b>Chopping wood</b>	7.5	21.4
<b>Tree felling</b> (ax)	8.5	25.0
<b>Stacking wood</b>	5.8	17.0
<b>Shoveling</b>	6.8	20.0

**Part B. TO BE COMPLETED BY APPLICANT**

(typewrite or print in ink)

<b>NAME</b> (last, first, middle)	<b>SOCIAL SECURITY NO.</b>	<b>SEX</b> ___ MALE ___ FEMALE	<b>DATE OF BIRTH</b>
DO YOU HAVE ANY MEDICAL DISORDER OR PHYSICAL IMPAIRMENT WHICH WOULD INTERFERE IN ANY WAY WITH THE FULL PERFORMANCE OF THE DUTIES SHOWN ABOVE IN PART A?  ___ YES      ___ NO  (If your answer is "YES" explain to the physician performing the examination)		I CERTIFY THAT ALL THE INFORMATION GIVEN BY ME IN CONNECTION WITH THIS EXAMINATION IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF  (Signature of Applicant)	

**Part C. TO BE COMPLETED BY EXAMINING PHYSICIAN.**

(INSTRUCTIONS TO PHYSICIAN: The duties of firefighter positions require sustained, arduous physical exertion under rigorous conditions. Persons will be subject to extreme environmental conditions and to irregular and protracted hours of work. This form lists some specific physical requirements for these positions. Please review the physical condition of this individual on every item listed on this form. Record any comments you may have on conditions which may limit the applicant's ability to safely perform this job on the reverse side of this form. It is essential that you review your patient on every item listed and that we have all of the following information recorded here.)

Weight: (lbs)	Height: (in)	Blood Pressure:	Pulse:	Uncorrected Distant Vision: R20/ L20/	Corrected Distant Vision: R20/ L20/	
DOES THE APPLICANT MEET THE REQUIREMENTS FOR THE FOLLOWING FUNCTIONS?					YES	NO
<b>EYESIGHT:</b> a) Uncorrected distant vision at least 20/100 Snellen in one eye and 20/200 in the other _____ b) Corrected distant vision at least 20/30 Snellen in one eye and 20/40 in the other _____ c) Evidence of acute or chronic eye disease (not time limited) _____ d) Corrected near vision; can read typewritten materials _____ e) Can distinguish basic colors _____ f) Peripheral vision _____						
EARS: No evidence of acute or chronic disease of external, middle or internal ear. Without hearing aid; no loss greater than an average in either ear of more than 40 dB at 500, 1000, and 2000 Hz)						

HEART & BLOOD VESSELS: (Based on medical history and in-office examination) No evidence of organic heart disease, valvular disease, coronary heart disease, cardiac enlargement, angina pectora, cardiac arrhythmia or irregularity other than sinus arrhythmia. Blood pressure, regulated or not, less than 160/90. Pulse rate at rest less than 100.		
--	--	--

NAME OF APPLICANT: \_\_\_\_\_ DATE OF EXAM: \_\_\_\_\_

FOLLOWING FUNCTIONS ARE WITHIN NORMAL LIMITS	YES	NO
NOSE, MOUTH & THROAT: No evidence of acute or chronic disease or other nasopharyngeal conditions which interfere with distinct speech or free breathing.		
TEETH: No evidence of gross dental problems that would be expected to affect the ability to carry out the work.		
LUNGS: No evidence of acute or chronic lung disease which impairs physical functioning or might limit the applicant's ability to perform the functions of the position (45mL/kg VO <sub>2</sub> max)		
ABDOMEN: No evidence of acute or chronic diseases; significant enlargement of the liver or spleen; hernia which would interfere with lifting, stretching or bending; or conditions that would otherwise affect the ability of the applicant to perform the requirements of the position.		
GENITOURINARY/METABOLIC: (Based on macroscopic and microscopic urine analysis) No evidence of acute or chronic genitourinary disease which would affect work. Individuals with a diagnosis of diabetes require individual evaluation by the agency.		
FOLLOWING FUNCTIONS ARE WITHIN NORMAL LIMITS	YES	NO
SPINE: No problems with the spine or back that would affect the ability of the applicant to perform the requirements of the position.		
EXTREMITIES: No problems with the extremities that would be expected to affect work. No loss of limbs, hands, or feet.		
NERVOUS SYSTEM: No evidence of neurological or psychiatric disorders likely to interfere with the performance of duties. A history of epilepsy or other seizure disorders requires an evaluation of pertinent treatment records by the agency MRO.		
SKIN: No evidence of excessive scarring or debilitating acute or chronic skin disease which would interfere with performance.		
OTHER DEFECTS: No evidence of diseases of defects not mentioned above which would interfere with performance of position.		



CONCLUSIONS: Summarize below any medical findings which, in your opinion, would limit this person's physical ability to perform job duties and/or could create an imminent hazard to himself/herself or others. If none, so indicate.

\_\_\_\_\_ No limiting conditions for this job

\_\_\_\_\_ Potentially limiting conditions and recommended work restrictions.

\_\_\_\_\_ Limiting conditions as follows:

NAME OF APPLICANT:		
EXAMINING PHYSICIAN'S NAME AND ADDRESS (Type or print and include ZIP code):	SIGNATURE OF EXAMINING PHYSICIAN	
	Signature	Date

IMPORTANT: After signing, return the form to:

\_\_\_\_\_

**Part D. TO BE COMPLETED BY AGENCY PERSONNEL OFFICER**

ACTION TAKEN: \_\_\_\_\_ Hired or retained. \_\_\_\_\_ Non-selected for appointment, or eligibility objected to  
 \_\_\_\_\_ Action taken to separate.

AGENCY PERSONNEL OFFICER (type or print)	SIGNATURE	DATE

**New NWCG ICS Position**

**Incident Commander Type 5 (ICT5)**

This position was adopted by the National Wildfire Coordinating Group, (NWCG) and will be included in the Wildland Fire Qualification Subsystem Guide (PMS 310-1).

The Type 5 incident has the following characteristics:

- Resources required normally vary from two to six firefighters.
- The fire is generally contained within the first burning period and often within a few hours after arrival.
- Additional firefighting resources or logistical support is normally not required.

**Incident Commander Type 5 (ICT5)**

REQUIRED TRAINING:	“Look Up, Look Down, Look Around” (full 4 hour course, PMS 427)
SUGGESTED TRAINING:	“Intermediate Fire Behavior” S 290 (may be substituted for required training, as it includes the entire “Look Up” material. S 290 in its entirety would exceed the standard.)
EXPERIENCE:	Satisfactory position performance (includes Position Task Book completion and prerequisite training) as an Advanced Firefighter/ Squad Boss (FFT1) on a wildfire incident
PHYSICAL FITNESS:	Arduous
OTHER ASSIGNMENTS THAT WILL MAINTAIN CURRENCY:	Advanced Firefighter (FFT1)

The ICT5 position is not prerequisite to the NWCG Incident Commander Type 4 (ICT4) position. The NWCG qualification pathway for ICT4 remains unchanged.

State Directors and Field Office Managers must ensure that all fires are managed in a safe and efficient manner. On incidents that meet the above criteria, an Incident Commander Type 5 may be assigned. However, Field Office Managers will maintain close oversight of incidents and make quick and effective adjustments to the management level when required.

## Prescribed Fire Qualifications

### Qualifications

The NWCG issued the *Wildland Fire Qualification Subsystem Guide, Part 2 – Prescribed Fire* (PMS 310-1 Part 2) in February 1995. This guide is the BLM's standard for prescribed fire qualifications. All BLM personnel assigned to prescribed fire operations will meet the minimum qualifications outlined in the subsystem guide. This will include personnel assisting other agencies even though the other agency may have established its own (lower) qualifications.

The IQCS does not separate prescribed fire qualifications by fuel type. The local units are responsible for ensuring that prescribed fire burn boss and ignition specialist qualifications and training are appropriate for the fuel type(s) that they will be working in. "Management has the ultimate responsibility and is accountable for failures resulting from inappropriate use of personnel in unfamiliar fuel types, regardless of their Red Card rating."

### Prescribed Fire Burn Boss 3 (RXB3)

As a supplement to the qualifications system the BLM has identified an additional position. This position would be identified as a "prescribed fire burn boss 3" (RXB3). The intent of the position is to qualify a person to supervise prescribed fire operations that are of "low complexity." These types of operations typically would have only a few personnel assigned, have a very low threat of escape, and present a minimal risk to the people involved in the operation. Examples of these types of operations would be: burning of piled slash, the burning of landings, ditch burning, debris burning, and small broadcast burns with a minimal chance for escape. (Note: These types of operations still require a signed prescribed fire plan.)

#### Prescribed Fire Burn Boss 3 (RXB3)

REQUIRED TRAINING:	Intermediate Fire Behavior S 290
SUGGESTED TRAINING:	Fire Supervision S 201
EXPERIENCE:	Successful position performance as an Incident Commander Type 5 (ICT5).
PHYSICAL FITNESS:	Arduous
OTHER ASSIGNMENTS THAT WILL MAINTAIN CURRENCY:	Advanced Firefighter (FFT1)

### Prescribed Fire Physical Fitness Requirements

The prescribed fire qualifications systems does not establish physical fitness levels. The following are the physical fitness levels established by the BLM for each prescribed fire position.

**Arduous** All holding and ignition personnel, Ignition Specialist 2 (RXI2), Ignition Specialist 1 (RXI1), Prescribed Fire Behavior Specialist (RXFS), Prescribed Fire Behavior Monitor (RXFM), and Prescribed Fire Burn Boss 3 (RXB3).

**Moderate** Prescribed Fire Burn Boss 2 (RXB2), and Prescribed Fire Behavior Analyst (RXFA).

**Light** Prescribed Fire Burn Boss 1 (RXB1).

**None** Prescribed Fire Manager 1 (RXM1), and Prescribed Fire Manager 2 (RXM2).

### **Prescribed Fire Currency Requirements**

The prescribed fire qualifications system does not establish currency requirements to maintain prescribed fire qualifications. The currency requirement is set at five years.

## 6 – Prescribed Fire



### Introduction

Fire is an essential ecological process in many ecosystems. Prescribed fire is used to maintain or restore vegetative communities, achieve potential future conditions, and to protect life, property, and values that would be degraded by wildland fire. Prescribed fire is only accomplished through management ignition.

Prescribed fire is the application of fire, under specified conditions, in a designated area to achieve land management objectives. Prescribed fires are defined as: any fire ignited by management action to meet specific objectives. A written, approved prescribed fire plan must exist, and NEPA requirements must be met, prior to ignition.

A complete reference for prescribed fire activities is the *Prescribed Fire Management Handbook* H-9214-1. Additional information on prescribed fire operations can be found in the chapters on safety, training and qualifications, reviews and investigations, and administration.

### Policy

Prescribed fire is used maintain or restore vegetative communities, achieve potential future condition, and to protect life, property, and values that could be degraded by wildland fire.

All prescribed fire projects will have a written and approved burn plan prior to ignition.

All burn plans will contain measurable objectives, a predetermined prescription, and a contingency plan in case the fire escapes.

All prescribed fire projects will be in compliance with NEPA requirements.

### Planning

The BLM's prescribed fire activities are coordinated between resources and fire management. All disciplines will coordinate the planning, implementation, monitoring, evaluation, reporting, and funding, for prescribed fire projects.

Resources managers are responsible for managing vegetation; fire staffs are responsible for ignitions.

All prescribed fire will support land and resource management plans (RMP). The RMP or other land use plans initiate, analyze and justify prescribed fire activities. The fire management plan (FMP) serves as strategy document for the prescribed fire activities. The prescribed fire plan serves as the project implementation document for an individual prescribed fire project.

**Prescribed Fire Plan**

The prescribed fire plan is a stand alone and legal document that provides the prescribed fire burn boss all the information needed to implement the project. Prescribed fire projects will comply with the written plan. At a minimum, consider each of the items below. The size and complexity of the prescribed fire project will determine the level of detail required and which sections are required.

Plan Approval	Technical Review	Complexity Rating
Risk Assessment	Physical Description	Map
Management	Prescription	Fire Behavior Calculations
Objectives	Notifications	Ignition & Holding
Smoke Management	Cost	Contingency Plan
Organization	Public Safety	JHA
Safety Briefing	Test Fire	Medical Plan
Go/No Go Checklist	Prescribed Fire Report	
Communications Plan		

Agency administrators, fire managers, and the prescribed fire burn boss should be aware of and understand the parts of the prescribed fire plan (if any) that may be changed on the site prior to implementing the project. This information may be included in the plan or it may be established as local policy.

**Restrictions**

Implementation of prescribed fires at national Preparedness Levels IV and V is restricted. (See the *National Mobilization Guide*.)

At national Preparedness Level IV concurrence by the SFMO must be obtained before implementing the local agency administrator's recommendation for a prescribed fire. An evaluation of significant risk is made by the SFMO or representative in a presentation of the prescribed fire implementation proposal to the geographic multi agency coordinating (MAC) group prior to prescribed fire approval. A coordination/tracking function will be established to track prescribed fires and resource commitments at geographic area and national coordination levels.

At national Preparedness Level V a national level representative must concur with the SFMO's recommendation. The national level representative will present an evaluation of significant risk in a proposal to the national MAC group prior to prescribed fire approval.

## Complexity & Smoke Management

### Complexity Rating

A complexity rating will be completed for each prescribed fire project. The determination of prescribed fire complexity will be based on an assessment of **risk** (the probability or likelihood of an unplanned event or situation occurring), **potential consequences** (some measure of the cost or result of an undesirable event or situation occurring), and **technical difficulty** (the level of skills needed to complete the project and deal with unplanned events).

The complexity rating will be based on the prescribed fire plan and the potential social, political, economic, biological, environmental, and legal consequences. Use the complexity rating to guide staffing levels, determine skill and experience requirements, and to determine the level of detail needed in the prescribed fire plan.

The Prescribed Fire Complexity System does not tie directly to the Prescribed Fire Qualifications System. The following guidance will apply. **All prescribed fire projects rated as complex will require a prescribed fire burn boss rated as RXB1 and an ignition specialist rated as RXI1.**

### Smoke Management

As per public law 95-95 compliance with federal, state, and local air quality regulations is mandatory and will require coordination with state and local air quality authorities. Personnel developing prescribed fire plans must be aware of state and local regulations, and the impacts that a specific project may have on critical areas. Potential smoke impacts on critical areas such as Class I air sheds, restricted areas, and designated areas (often called non-attainment areas) must be considered. Equally important are local features that could be impacted such as highways, airports, recreation sites and smaller population centers. Prescribed fire plans need to identify sensitive areas and provide operational guidance to minimize the impacts from smoke. If potential negative impacts from smoke could occur, an assessment of potential downwind impacts using an appropriate smoke management model will be completed. Some states require that some type of smoke dispersion modeling be done before they will issue a permit for the prescribed fire project.

## Project Financing

Prescribed fire projects will be funded by program areas who will cover their own regular (base-eight) salaries and fixed costs. This applies to items such as preliminary site assessments, writing environmental assessments, developing prescribed fire plans, obtaining clearances, training, and monitoring. Regular salaries for fire staff involved in prescribed fire activities are programmed in Preparedness (2810).

Funding for the implementation of prescribed fire projects must be identified and agreed to at the field office level. The hazardous fuel reduction subactivity (2823) will provide funding for operational implementation costs. The *BLM Fiscal Fund Coding Handbook* provides specific guidance for the use of this funding. The primary focus of the 2823 funding is to implement prescribed fire projects. Additional guidance for using 2823 funds can be found in the Administration Chapter.

Hazard pay will not be given for prescribed fire.

The BLM can contract to conduct all or part of the prescribed fire operations and/or all or part of mechanical treatments for "hazard fuel reduction" projects.

If a contractor is involved in igniting, holding or mopping up a BLM prescribed fire, a contracting officers authorized representative (COAR) or project inspector (PI) will be on the site (exceptions can be made for late stage mop up and patrol) to ensure burn objectives are being met and the terms of the contract are followed. The BLM representative (COAR or PI) must have prescribed fire and/or wildfire qualifications equal to what the BLM requires if a BLM prescribed fire burn boss was conducting the actual operations.

## Cooperation and Assistance

Offices are encouraged to enter into agreements for the cooperative use of prescribed fire resources. Joint ecosystem based prescribed fire management programs are encouraged to accomplish resource or landscape management objectives when consistent with resource management plans. These partnerships are encouraged at both the programmatic and project levels to implement prescribed fire projects.

Any prescribed fire that involves BLM employees or major equipment (engines or helicopters, etc.) will be supported by a prescribed fire plan. In the absence of a cooperative agreement the field office manager will provide a memo authorizing BLM participation. This memo will state the type and amount of assistance to be provided, identify safety, liability and other issues, and specify financial arrangements.



## BLM and Other Federal Agencies

Assistance to other BLM units may be provided without formal agreement. If the assistance is related to the implementation of prescribed fire projects, the assisting unit may use the prescribed fire number assigned by the host unit.

Coordination with other federal agencies will occur in the planning phase for joint prescribed fire projects. The BLM may provide assistance for prescribed fire that will be conducted on land administered by other federal agencies. The "Interagency Agreement for Fire Management," dated 2/20/97, provides for interagency assistance without additional agreements. Assistance is initiated by the issuance of "task orders" that provide the project specifics. Fuels management, "including prescribed fire" is specifically covered in the agreement.

The guidance for prescribed fire operations says that, "Interior and the Forest Service should not charge each other for personnel and other resources." All five fire directors agree that the general policy of not cross billing is appropriate.

Generally costs for assistance with prescribed fire projects should be offset at the local level as much as possible. Agency resources (goods, services, and personnel) that are planned and funded as part of an agency's program are usually not reimbursable items. Examples of reimbursable items are:

- Equipment and aircraft use rates
- Major repairs and equipment replacement
- Contract/lease availabilities for early activation or extensions
- National caterer, shower, and Type I and II CWN helicopters
- Cache charges (e.g., shipping, refurbishment, replacement)
- Overtime for weekends and holidays
- Emergency Workers (EFF) where the using office has no assistant Disbursing Officer (ADO) to pay the crews

The four DOI fire directors have further agreed that **NO** local reimbursement among BLM, BIA, FWS, and NPS will be made. As always the field offices will code all costs to a fuels management project number. The usual process of combining the Federal Financial System data and the Fire Report System data gives BLM offices the ability to track these costs by agency and office. If there is an unreimbursed deficit at the local level that will impact the field office's ability to complete its workload, it needs to contact their state office. If the state office cannot resolve the issue it should contact the national fire budget lead. At the national level the individual Interior agencies' hazardous fuel reduction ceilings will be balanced to account for assistance workloads.

In summary, assistance to other agencies should be offset locally. With the exception of the items noted above, there will be no cross-billing with the Forest Service. Assistance not offset locally must be absorbed by the office providing the assistance. Assistance provided to other DOI agencies and not offset locally

will be offset at the state and national office levels. Assistance costs do not count against the local office's 2823 ceiling.

### **Private Land Owners**

Agency administrators should enter into agreements with private parties on intermingled lands when resource objectives can best be met through this approach. The agreements will specify the exact lands involved, the overall objectives, actions to be taken by each party, and how costs will be shared. The private land owner should fund a proportional share of the project cost. However, this does not need to be a monetary exchange. The private land owner may provide services (e.g., line construction), equipment (e.g., engines, water tenders or dozers), supplies (e.g., fuel), or personnel to fulfill their part of the obligation.

There may be occasions where a private land owner would allow the BLM to burn private land to facilitate a BLM project. For example moving a perimeter to a road or natural barrier on private land would allow the BLM to avoid constructing as much fire line. In such cases there is a clear benefit to the BLM and asking the private land owner to share the cost would not be appropriate.

## **Escaped Prescribed Fires**

A prescribed fire becomes a wildland fire when the prescribed fire burn boss determines an escape has occurred, is likely to occur, or environmental conditions and/or fire behavior exceeds the parameters in the prescribed fire plan. As such, the fire is no longer meeting the identified management objectives. Fire outside of the planned perimeter that cannot be contained with the holding forces identified in the prescribed fire plan is an escape and will be declared a wildland fire. This is not a "slopover" that crosses the fire line, but which can be contained by resources on-site. (No suppression charges will be used).

When a prescribed fire is declared a wildland fire, managers still have the full range of suppression options available under the concept of the "Appropriate Management Response." If a prescribed fire is declared a wildland fire, a fire number will be assigned and all suppression costs will be charged to the 2821 subactivity.

The following actions will be taken on all BLM prescribed fires that escape and are declared wildland fires:

- 1) Take prompt and reasonable action to control and suppress the fire. This could include developing a "Wildland Fire Situation Analysis;"
- 2) Notify the BLM agency administrator responsible for the area;

- 3) Notify the other agency administrator(s), and/or other land owners that may be affected, of the escaped fire. Coordinate suppression actions with the other affected parties.
- 4) Document the time and environmental conditions that existed when the escape occurred.
- 5) Document the incident, including all actions prior to and after the escape. Set up a file that includes all pertinent information, i.e., the prescribed fire plan, a chronology of events including the prescribed fire report and unit logs or individual statements, the fire investigation report, weather forecasts including any spot forecasts, Remote Automated Weather Station (RAWS) data and National Fire Danger Rating System (NFDRS) data for the day of the escape for the nearest weather stations, photos, and any appraisal of damages.

All escaped prescribed will receive an administrative review. The level and scope of the review will be determined by the injuries, damage, and cost associated with the escape. See the "Reviews/Investigation" Chapter for additional information.

## Prescribed Fire Support

### NPS Prescribed Fire Modules

The Prescribed Fire Modules provide the wildland fire management agencies with skilled and mobile personnel who are dedicated principally to prescribed fire management. As a national and interagency resource, the modules are available to all units throughout the prescribed fire season. On an interagency basis these modules are available to ignite, hold, and monitor prescribed fires.

#### ***Organization***

Six prescribed fire modules are normally available. They are located at:

- Bandolier National Recreation Area
- Whiskeytown National Recreation Area
- Yellowstone National Park
- Zion National Park *These modules are normally available from late April to late September.*
- Buffalo National River *This module is normally available from late February to late August.*
- Great Smoky Mountain National Park *This module is normally available from mid-February to mid-August.*

The four western modules are composed of seven members; the eastern modules are composed of five members. The skills associated with these modules include:

- prescribed fire analyst
- prescribed fire specialist
- prescribed fire monitor
- ignition specialist
- single resource boss (holding)
- burn boss

### ***Mobilization***

All assignments will be scheduled and tracked by the program coordinator. To schedule modules contact: NPS Program Coordinator, NPS-NIFC, at 208-387-5219.

### ***BLM Smokejumpers***

The BLM smokejumpers at NIFC are available to provide assistance for prescribed fire and other fuels management projects.

The smokejumper unit can provide prescribed fire skills in the following areas:

- prescribed fire monitor
- single resource boss/strike team leader (holding)
- crewmembers
- ignition specialist
- burn boss

The smokejumpers can also assist in writing burn plans, site preparation, and non-fire hazardous fuels reduction work.

Generally, the smokejumpers are available for prescribed fire or other management work from March 1 to May 20 and from September 15 to November 15.

### ***Mobilization***

To schedule smokejumper support for prescribed fire or other fuels management projects contact: smokejumper prescribed fire coordinator at 208-387-5426.

### ***BLM Interagency Hotshot Crews***

The Bureau has seven interagency hotshot crews that support prescribed fire or other fuels management projects. Depending on the personnel availability and the location of the project, part or all of a crew may be able to assist. Scheduling should be done through the sponsoring unit or crew superintendent.

The BLM IHCs are located at:

- Chena – Fairbanks, AK
- Midnight Suns – Fairbanks, AK
- Kern Valley – Bakersfield, CA
- Diamond Mountain – Susanville, CA
- Jackson – Jackson, MS
- Silver State – Carson City, NV
- Vale – Vale, OR

### ***AD Hire Authority***

The DOI has the authority to hire personnel under the Administratively Determined (AD) pay plan for "fire use" work related to hazardous fuel reduction operations. The AD pay plan may be used to supplement regular personnel assigned to prescribed fire projects. The term of hire is restricted to no greater than the period beginning 24 hours prior to the planned ignition and extending through 24 hours after the perimeter is secured.

Complete guidance for the use of this authority can be found in the "Administration" chapter.

### **Resource Ordering Process**

The resource ordering process for prescribed fire mirrors the process for suppression. Every effort should be made to use the "closest forces" concept. Orders that cannot be filled locally should be placed through the resource ordering process. When another agency requests assistance for a prescribed fire project, the local BLM office assigns one of its prescribed fire project numbers. This will be the only BLM number issued for that assistance activity, regardless of the location from where the BLM office will determine if it can provide assistance. If the assistance can be provided, activities are handled strictly between the two interagency neighbors. If only part or none of the requested assistance can be provided, the local BLM office will provide a prescribed fire project number to the requesting agency. The office should also explain that if the requestor decides to seek assistance from other BLM offices, the BLM project number should be provided and used for all BLM resources.

## **Reports**

All prescribed fires, will be assigned a prescribed fire number and reported on the DI-1202. A prescribed fire number should also be assigned to mechanical treatment projects to aid in tracking accomplishments costs. A prescribed fire number should also be assigned whenever assistance is provided to another agency. Prescribed fire, mechanical treatments, and other agency assistance reporting will be done electronically similar to wildfire reporting.

Accomplishment reporting will be done using two figures:

**Burned/Treated** Calculate the total acres treated based on the number of acres of vegetation (live or dead) altered by burning, mechanical, or chemical methods less significant unaltered acres. The value of the burned/treated acres must be less than or equal to the total project acres.

**Total Project** This acreage figure represents the total acreage in the project, including areas that were left untreated. Calculate the total project acres

based on the perimeter of the project when attempting to obtain resource objectives that are covered in a treatment or prescribed fire plan.

Should a prescribed fire escape and be declared a wildland fire, two reports would be required. The acreage burned while the fire was considered a prescribed fire is reported as prescribed fire acreage using the prescribed fire number. Acreage burned after the fire was declared a wildland fire is reported as wildland fire acreage using the local fire number.

Prescribed fire numbers will be assigned for other agency assists. The purpose of using assist numbers is to track funds spent to assist other agencies with prescribed fire or other fuels management projects. While "offset services" or billing is not required when providing assistance, using an assist number provides the basis for such actions and allows the national office to track overall costs.

Assign one number per project where the cost must be tracked. Use the next available prescribed fire number from the block assigned to your office.

Do not use an assist number for assists to other BLM offices; use the prescribed fire number assigned by the host unit.

Instructions for all reports can be found at the following web site:  
[http://www.nifc.blm.gov/nsdu/fire\\_reporting/doc/SpecificInstructions.html](http://www.nifc.blm.gov/nsdu/fire_reporting/doc/SpecificInstructions.html)

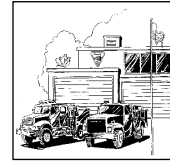
## Qualifications

A discussion of prescribed fire training and qualifications can be found in the "Training and Qualifications" Chapter.

## Safety

A specific discussion of prescribed fire related safety issues can be found in the "Safety" Chapter.

## 7 – Preparedness



### Preparedness

BLM maintains appropriate levels of preparedness to meet agency fire management objectives. Preparedness is based on the assessment of fuel and weather conditions from the National Fire Danger Rating System (NFDRS) or, for Alaska, the Canadian Forest Fire Danger Rating System. Preparedness plans, seasonal risk analyses, and severity funding are based at a minimum on locally produced fire danger operating plans.

### Fire Danger Operating Plan

The fire danger operating plan documents the establishment and management of the local unit fire weather system, and incorporates NFDRS fire danger modeling in the local unit fire management decisions. (It should not be confused with the National Weather Service Fire Weather Operating Plan.) Fire danger operating plans will be standard in FY99.

A fire danger operating plan has the following minimum components:

- Roles and Responsibilities – Defined for those responsible for maintenance and daily implementation of the plan, program management related to the plan, and associated training.
- Fire Danger Rating Areas – Aggregates of basic response areas, fire danger rating areas are defined by location of weather stations and NFDRS fuel models, slope classes and climate classes. In most cases the fire danger rating areas will be the same as fire management zones (FMZ) developed in the most current fire planning process. Training for development of fire danger rating areas is available at NARTC.
- NFDRS Thresholds – Thresholds, or breakpoints, are used to define fire danger input to management decisions in each fire danger rating area. Activities, events and fire operations affected by fire danger are identified and appropriate NFDRS components or indices are selected as decision guides. Historical analysis of fire weather data is used to identify thresholds for staffing class, adjective rating, and preparedness level.
  - ♦ Staffing Class (i.e., 1, 2, 3-, 3+, 4, 5) is based on the energy release component (ERC) or the burning index (BI). It is used to make daily internal fire operations decisions.

- ♦ Adjective Rating (low, moderate, high, very high, extreme) is based on staffing class and the ignition component. It is a general description of fire danger for the purpose of informing the public.
- ♦ Preparedness Level (1–5) is based on staffing class or index value and other local/area preparedness parameters and it is meant for internal management direction and operational support.

Thresholds are established for each decision class to assist all appropriate management responses. (See Table 1.) Thresholds are based on both historical weather (climatology) and a combination of climatology and fire occurrence (fire business). BLM climatological thresholds are the 80th and 95th percentiles of the appropriate component or index and are used in each weather station catalog in the Weather Information Management System (WIMS). BLM fire business thresholds are based on climatology and fire occurrence and best reflect the relevant decision points for a response area.

Fire business thresholds are developed with the Fire Information Retrieval Evaluation System (FIRES) program and used locally to define fire danger input to the preparedness plan. Training for the FIRES program is available at local, regional, and national NFDRC courses.

Table 1. Example of decision thresholds defined for each fire danger rating area.

Danger Rating Area	Weather Station	Fuel Model	Index	PL 1	PL 2	PL 3	PL 4	PL 5
ELK001	269999	T	BI	0 - 12	13 - 20	21 - 35	36 - 45	>45
ELK002	268888	A	BI	0 -				
ELK003	267777	C	BI	0 -				
ELK004	266666	F	Live FM	0 -				
ELK005	265555	G	ERC	0 -				

- Operational Procedures – Proper timing and settings are established on weather station catalogs, including breakpoints and greenup.

## Preparedness Plan

### Parameters of the Local Preparedness Plans

Preparedness levels are determined by using at a minimum a logical combination of the following parameters (see Table 2):



- A NFDRS component or index or other fuel moisture indicator (such as live fuel moisture study) as described by the fire danger operating plan;
- An indicator of fine fuel loadings, described as a departure from normal;
- Committed IA resources on and off unit;
- Current and expected fire occurrence (number and size of fires);
- Fire weather warnings and red flag warnings;

Table 2: An example of preparedness level descriptions

Parameters	Level 1	Level 2	Level 3	Level 4	Level 5
NFDRS	¾ FDR Areas	¾ FDR Areas	¾ FDR Areas	2/3 FDR Areas	2/3 FDR Areas
Fuel Load	Below Normal	Normal	Above Normal	Much Above	Much Above
Crew Commitment	0 -5	5 – 10	10 – 20	20 - 40	40 +
Large/Multiple Fire Activity	–	Yes	Yes	Yes	Yes
Fire Wx/Red Flag Warning		Wildcard	Wildcard	Wildcard	Wildcard

### Preparedness Level Action Items

A set of actions are taken at each planning level. Safety is the primary consideration for each of these actions. Local preparedness plans are to include, but are not limited to the following action items. They are to serve as guides and should not duplicate items addressed in a geographic or national preparedness plan.

- Management direction and considerations.
- Fire prevention actions including closures/restrictions, media messages, signing, and patrolling.
- Prepositioning suppression resources
- Cooperation discussion and/or involvement.
- Safety considerations: safety message, safety officer.
- Augmentation of suppression forces.
- Support function: consideration given to expanded dispatch activation, initial attack dispatch staffing, and other support needs, e. g., procurement, supply, ground support, and communication.
- Resource area and support staff availability outside of fire organization.
- Communication of fire weather and red flag conditions.
- Fire danger/behavior assessment.
- Briefings for management and fire suppression personnel.
- Fire information—internal and external.

- Multi-agency coordination groups/area command activation.
- Prescribed fire direction and considerations.

## Mobilization Guide

The National Interagency Coordination Center (NICC) at the National Interagency Fire Center (NIFC) is responsible for the cost-effective and timely coordination of national emergency response for wildfire suppression. This is accomplished through planning, situation monitoring and expediting resources orders between the federal wildland fire agencies and their cooperators.

The *National Interagency Mobilization Guide* contains standard procedures which guide the operations of multi-agency logistical support activity throughout the coordination system. It is designed to accommodate amendments as needed, and will be retained as current material until amended. Local mobilization guides should be used to supplement the *National Interagency Mobilization Guide*. Geographic areas will provide NICC with two copies of their mobilization guide and will provide amendments as issued. Local mobilization guides should be prepared on an interagency basis. Local units will provide their geographic area coordination center with two copies of their mobilization guide and will provide amendments as issued.

## Seasonal Risk Analysis

Seasonal risk analysis is the procedure for analyzing present and future fire danger for any given area.

Seasonal risk analysis requires fire managers to step back, review current and predicted weather and fuels information, compare this information with historic weather and fuels records, and predict the upcoming fire season's severity and duration. It is important to incorporate drought indices into this assessment.

Seasonal risk analysis information can be used to modify step-up and pre-attack plans. It provides the basis for actions such as pre-positioning critical resources, requesting additional funding, or modifying memoranda of understanding (MOU) to meet anticipated needs.

Each field office selects and compares to normal the current value and seasonal trend of one or more of the following indicators which are most useful in predicting fire season severity and duration in its area:

- NFDRS (or CFFDRS) index values (ERC, BI)
- Temperature levels
- Precipitation levels
- Humidity levels
- Palmer Drought or Standardized Precipitation Index

- 1000-hour fuel moisture (timber fuels)
- Vegetation moisture levels
  - ♦ Live fuel moisture (brush fuels)
  - ♦ Curing rate (grass fuels)
- Episodic wind events (moisture drying days)
- Unusual weather events (e.g., early severe frost)
- Fires to date

The seasonal trend of each selected indicator is graphically compared to normal and all-time worst. This comparison is updated regularly and posted in dispatch and crew areas.

If the risk analysis suggests that an abnormal fire season might be anticipated, a field office should notify the state office and request additional resources commensurate with the escalated risk.

Local risk analyses should be compiled at the state office to determine the predicted fire season severity within the state, and then forwarded to the Office of Fire and Aviation for use in determining national fire preparedness needs.

Risk analysis is an on-going process; it should be reviewed periodically and revised when significant changes in key indicators occur. All reviews of risk analysis, even if no changes are made, should be documented.

## Severity Fund Guidance

### Objective of Fire Severity

Fire severity funds are used to improve initial attack response capabilities when abnormal fire conditions occur resulting in fire seasons starting earlier than normal, lasting longer than normal, or exceeding average high fire danger rating for prolonged periods. Abnormal conditions exceed the weather and fire history conditions used in the fire management workload analysis to determine the most efficient and effective organization and therefore should exceed the planned workload. Typical uses of severity funds are to: temporarily increase firefighting staffing, pay for standby, preposition initial attack suppression forces in areas of abnormally high fire danger, provide additional aerial reconnaissance, standby aircraft availability, increased prevention activities, and other supplemental contractual services. These funds are not provided to restore lost funding or to raise funding levels to those identified in the fire management plans as the most efficient level (MEL), and thus are not an "augmentation" in funding. The authorization to use suppression operations funds for severity preparedness purposes is controlled by individual project approval tied to dollar ceilings, time frames and the preparedness resources. Regardless of the length of severity authorization, funding activities must be terminated when abnormal conditions no longer exist. There are two levels of severity funds; state and national.

**State Level Severity Funds** Each fiscal year, State Directors have the authority to expend up to \$100,000 for state “short term” severity needs. Short-term needs refer to special preparedness activities that address situations anticipated to last less than a week. State directors are responsible and accountable to ensure these funds are only used to meet the objectives of severity and that amounts are not exceeded.

Each state office is responsible for establishing a process to document needs, approvals, and how the funds are utilized. At a minimum the process should require the field office to document the reason for the request by providing some technical data, e.g., wind events, cold dry front passage, lightning events, unexpected social events such as motorcycle rallies, and contain a line officer’s or formally delegated official’s signature. The request and the state’s decision should be maintained in a state office severity file.

Every fiscal year the national Office of Fire and Aviation will provide each state with a unique project number to implement state level severity funding activities. The national office will also notify the state director, state budget officer and the SFMO when the number is provided and will request the National Business Center (NBC) to enter the projects in the accounting system.

**National Level Severity Funding** The director of the Office of Fire and Aviation has the authority to allocate to states funds from the suppression operations subactivity for specified preparedness activities and specified time frames (two weeks to 30 days) that will increase preparedness capabilities. The need for these funds must be based upon fuels and weather conditions which are creating, or have the potential to create, abnormal fire protection workloads. The following is the process to implement the use of these funds:

**Request** – A formal documented request should be concise and at a minimum contain the following information:

- Quantification of need – Quantification of needs requires that all of the following items be addressed and that at least one must be shown to demonstrate that fuel and weather conditions exceed those used in the fire management workload analysis and, therefore, the planned workload.
  - ♦ Fire danger models – Using fire danger analysis software (Firefamily, FIRES, or PC Season), that graphically displays the current seasonal trend for ERC and/or BI vs. all-time worst and historical average.
  - ♦ Precipitation/drought - Palmer or standardized precipitation indices that specify the departure from normal.
  - ♦ Fuel loading - Quantitative information comparing current to the average.
  - ♦ Fuel moisture - Live and dead fuels for current vs. average, and the all time worst. (Local current fuel moisture [Note: data from the normalized difference vegetation index (NDVI) and the Great Basin Live Fuel Moisture

Project may be a week old or older], compared to the average, trend, and all time worst provided by NDVI and/or Great Basin Project reports.)

- ♦ NWS 30-day weather outlook

- Amounts, types, and costs – In a table format identify the requested preparedness resources (see sample below).
- Narrative statement – Provide a brief statement of the interagency situation (local and/or geographic). Note: Each agency should request funds only for their own needs, not for the needs of another agency. Sharing resources when all parties have needs is desirable.
- Approval signature – The request should contain the signature and date of the relevant line officer.
- Severity file – Set up a severity file where all documents are maintained for reference, monitoring, and evaluation.
- Modifications and extensions – Extensions and modifications to the request(s) are made through the same process.

#### Sample Field Office Severity Request

Item	Quantity	Unit Cost	Total Cost
Type 4 engine	1	use rate per day (not FOR)	\$\$\$\$
Engine crew labor	5	average cost/day	\$\$\$\$
Engine crew travel/per diem	5	Government rate	\$\$\$\$
SEAT	1	daily minimum & hourly rate	\$\$\$\$
Type 3 IC labor	1	average cost/day	\$\$\$\$
Type 3 IC travel and per diem	1	Government rate	\$\$\$\$

**Responsibilities/Approval Process**

<b>Responsibility/Actions</b>	<b>Responsible Official</b>
Identify and develop request.	Field Office, FMO
Approve and transmit to state office.	Field Office, Line Officer
Review, technical analysis, verify, modify, and consolidate requests within 48 hours.	State Office, SFMO
Identify and add to the request state needs not efficiently met by field offices	State Office, SFMO
Approve and transmit to Director, Office of Fire and Aviation (informally notify fire budget staff).	State Director
Review, technical analysis verification, modification within 48 hours.	Office of Fire and Aviation
Approve and transmit to NBC, Washington Office budget and state director/SFMO.	Office of Fire and Aviation
Establish projects in FFS within 24 hours.	NBC, Accounting Group
Notify field office(s) and state budget lead upon receipt of national office approval.	State Office, SFMO
Execute severity project, monitor program and expenditures on a real-time basis.	Field Office
Severity files: include requests, approvals, summary of expenditures and activities.	Field/State/National Offices

### **Appropriate Severity Charges (When Not on Wildfires)**

#### **Labor**

- Labor Cost Coding
  - ♦ BLM fire personnel outside their activation period should charge all time to the suppression operations subactivity (2821) and the requesting office's severity project number.
  - ♦ BLM employees whose regular salary is not funded by fire management should charge all time to Suppression Operations subactivity (2821) and the requesting office's severity project number.

- ♦ BLM employees hired above the normal staffing (Administratively Determined (AD)) should charge all time to the suppression operations subactivity (2821) and the severity number of the requesting office.
- ♦ Non-federal employees should charge all time to the suppression operations subactivity and the requesting office's severity number. A task order for reimbursement will have to be established and is authorized under the Interagency Agreement for Fire Management.
- ♦ Other federal agency fire employees (BIA, FWS, USFS, NPS) within their activation period should charge base salaries to their home unit and their overtime to the suppression operations subactivity (2821) and the severity number of the requesting office. A task order for reimbursement will have to be established and is authorized under the Interagency Agreement for Fire Management.
- ♦ BLM fire funded personnel should charge their regular planned salary (base-eight) to their home unit's location code, the preparedness subactivity 2821, and the requesting office's severity project number. For example:
  - An Idaho Falls, Idaho fire management employee detailed to Arizona on a severity request codes the base-eight to: ID 030 2811 00 XXXX (the severity project number);
  - An Idaho Falls range specialist detailed to Arizona on a severity request codes the base-eight to: ID 030 2821 XXXX (the severity project number).
- Labor considerations:
  - ♦ All overtime is funded by severity unless assigned to a wildfire. Overtime is not guaranteed, it must be based on need.
  - ♦ Severity assignments/details frequently last up to 30 days and should not be constrained by 21-day fire assignment limitations.
  - ♦ In general, personnel obtained under severity authorizations should not be used to fill wildland fire resource orders outside the local dispatch area.
  - ♦ Resources obtained under fire severity funding must be available for "immediate" initial attack regardless of the daily task assignment.
  - ♦ When personnel and preparedness resources are assigned to a wildland fire, the wildland fire number will be used. **There will be no use of any severity project number while assigned to a wildland fire.**

***Vehicles and Equipment***

- GSA rental and mileage
- BLM-owned use rate (not F.O.R.)
- Commercial rentals and contracts

***Aircraft***

- Contract extensions
- Call when needed (CWN) daily minimum
- Flight time related to prepositioning
- Facilities to support aircraft brought on with severity funds (facility rentals, utilities, telephones, etc.)

***Travel and Per Diem*** (Detailed personnel and pre-positioning)

- All off-base per diem (travel voucher)
- Government-provided meals in lieu of per diem
- Government-provided lodging in lieu of per diem
- Airfare to and from duty station/pre-position location
- Privately owned vehicle mileage (with advance approval)
- Government vehicle mileage to and from duty station

***Supplies*** Supplies are normally available in fire caches and should be not be purchased.

***Inappropriate Severity Charges***

- Administrative surcharges, indirect costs, fringe benefits
- Equipment purchases
- Vehicles (including maintenance, F.O.R., repairs, upgrades)
- Radios (unless approved by the national office because of a national shortage)
- Telephones (including cellular)
- Pumps, saws and similar suppression equipment
- Aircraft availability during contract period

**Fire Prevention/Education**

BLM fire prevention programs are based upon local wildland fire prevention plans (WPP) which include: 1) an assessment of risks, hazards, values and historical fire occurrence, 2) unit-wide (general) and localized (specific) prevention strategies identified and implemented and 3) the approved prevention program funding level (workload analysis). For information on the WPP process refer to the DOI *Wildfire Prevention Analysis and Planning Guide*.

WPPs are based on average weather conditions, historical fire occurrence, normal fire behavior and expected human activities. To ensure fire prevention



strategies are properly implemented as dangerous fire conditions escalate, preparedness plans should include proactive fire prevention step-up procedures.

When a seasonal risk analysis indicates that the potential for fire behavior and/or human-caused ignitions has increased significantly, the predicted situation and the WPP should be reviewed to identify necessary general and specific prevention actions and the resources required to accomplish these additional prevention program requirements. These resources should then be requested through one of the procedures identified below.

An inclusive fire severity request includes a wildland fire prevention component, developed through interagency planning, identifying the prevention resources needed to prevent undesirable wildland fires. This can be accomplished by:

- 1) Interagency fire prevention planning to determine appropriate fire prevention resources and then requesting prevention resources through a field office or state fire severity request.
- 2) Mobilizing a “cooperative fire prevention/education team” to support interagency fire loss mitigation or to coordinate fire education efforts during periods of active prescribed burning. Refer to Chapter 20 of the *National Interagency Mobilization Guide* for procedures.



## 8 – Suppression Resources

### Engines

BLM engine modules are a highly trained, organized, and efficient local and national resource in all wildland fire management operations, including initial attack, extended attack, and fire use activities. The primary purpose of these engine modules is to provide safe, highly trained, and organized crews to staff and manage the fire apparatus in the BLM fleet.

The BLM year 2000 fire management plan's most efficient level (MEL) identifies the need for 182 type 4/5 Engines and 139 Type 6 engines.

### Policy

Each state will insure compliance with established BLM engine module standards. Standardization in training, equipment, communication, organization, and operating procedures are required to effectively perform arduous duties in multi-agency environments, various geographic areas. Where water is the suppression agent delivered by engines and portable pumps, use Class A foam concentrate to improve the efficiency of water except near watercourses because accidental spillage or overspray of overspray of the chemical could be harmful to the aquatic ecosystem.

### Safety

All BLM engine personnel **will** promote and maintain a passion for safety. Tactical deployment of crews will not be initiated or continued without strict compliance to the Standard FIRE Orders, LCES, and 18 Watch Out Situations. It is the responsibility of each member of the crew to act safety. In addition all personnel will receive training in hazardous materials, vehicle fires, and incidents located in the wildland urban interface. Consider maintaining at least 10 percent of the pumpable capacity of the water tank for emergency engine protection and drafting.

### BLM Fire Engine Module Staffing

Type 6 engine will have a minimum crew of two – an engine module leader or an engine operator and an engine module member.

All type 3, 4, or 5 engine will have a minimum crew size of three.

- ♦ Single resource engines will be comprised of a module leader, an operator, and one or more module members.

- ♦ Task force engines will have an operator and the appropriate number of module members. The leader position is not required on each engine but must be filled within the task force.

### **Performance Requirements for Engine Modules**

The following performance requirements are based on the daily duties of engine module personnel and may be beyond the requirements contained in the *Wildland Fire Qualifications Subsystem Guide's* (NWCG 310-1) qualification standards and task books for single resource boss. The bureau has established an engine operator position and associated task book to meet field needs.

#### **Module Member**

**Training:** I-100, S-131

**Qualifications:** FFT2

#### **Performance Requirements:**

**Apparatus Appearance** Ability to keep the vehicle clean and presentable to local standards.

**Apparatus Inventory** Ability to maintain inventory in a constant state of readiness. All tools and equipment must meet refurbishment standards specified in NFES 2249, *Fire Equipment Storage and Refurbishment*.

**Tool and Equipment Standards** Ability to use, check condition and identify repair/replacement needs as identified in NFES 1571, *Firefighters Guide*.

**Hose Packs** Working knowledge of hose pack types and how to use safely and effectively deliver water to the fire.

**Types of Hose** Working knowledge of hose identification and use. See NFES 1308 *Wildland Fire Hose Guide*.

**Fittings/Nozzles** Ability to identify fittings and nozzles, understand use, capabilities, limitations, and perform maintenance.

#### **Operator**

**Training:** S-201, S-211, Engine Operator Training

**Qualifications:** CDL, ENOP, FFT1

**Performance Requirements:** All the above and the following:

**Stationary Pumping** Ability to set up stationary pumping operations to effectively, safely, quickly deliver water to a fire through a hoselay.

**Mobile Attack** Ability to set up and perform running attack effectively, safely, and quickly. Understand roles and responsibilities associated in performing mobile attack with more than one engine.

**Urban Interface** Understand tactics, hazards and agency policy with regards to urban interface situations.

**Interface with Municipal Fire Apparatus** Understand municipal apparatus capabilities and limitations and how to effectively interface with equipment. Be aware of the pressures and flow rates used with municipal apparatus and their potential effects on wildland fire equipment.

**Engine Protection** Ability to protect engine by positioning in a fire safe area, set up and utilize engine protection lines.

**Foam** Ability to produce different types of foam from nozzle in timely manner for different fire situations. Understand the principles of compressed air foam generation and foam generation through a proportioner.

**Pump Theory and Operation** Understand pump theory and operation. Must be able to effectively apply this knowledge to fire situations most commonly encountered. Effectively troubleshoot pump/valve problems in various and drill fire situations.

**Drafting Theory** Ability to draft from external source and fill engine tank. Draft and deliver water through a hose lay.

**Hydrant Use** Understand and apply the safe and effective operation of fire hydrants and be able to set up an engine for hydrant water delivery.

**Rules of Thumb** Ability to effectively state and apply rules of thumb relating to fire hydraulics including friction loss.

**Capabilities/Limitations** Must understand pump capabilities and limitations (i.e., GPM, PSI and altitude).

**Cab and Chassis – Perform Vehicle Maintenance Procedures** Ability to maintain vehicle per manufacturer's/agency standards keeping vehicle in a constant state of fire readiness.

**Pump Package – Perform Pump Maintenance Procedures** Ability to maintain pump package per manufacturer's/agency standards. Pump package must be in a constant state of readiness.

**Foam Equipment Maintenance** Ability to flush the engine foam proportioner according to the manufacturer's recommended procedures.

**Pump Test Log** Ability to perform required pump test to assure pump/plumbing are operating to specifications and maintain log.

**Troubleshooting-Vehicle Pump** Ability to troubleshoot apparatus, pump and equipment problems and develop solutions/repair needs.

**Winterization** Ability to properly winterize apparatus and pump package to protect from potential freeze damage.

**Simple Hoselays** Ability to perform initial lay out and extend as needed a simple hoselay delivering water to fire safely, effectively, and in a timely manner.

**Progressive Hoselays** Ability to perform initial lay out and extend a progressive hoselay delivering water to fire safely, effectively, and in a timely manner.

**Troubleshooting** Ability to troubleshoot hoselay evolution problems and develop solutions.

**Radio Use** Understands and apply bureau policy regarding radio use and protocol, and be proficient at radio programming.

### ***Module Leader***

**Training:** I-400, S-200, S-212, S-205, S-230, S-231, S-234, S-260, S-290, S-270, S-301

**Qualifications:** ICT4, ENGB

**Performance Requirements:** All the above and the following:

**Equipment Capability** Understand equipment capabilities and limitations and their relationship to fuels, topography and fire behavior.

**Crew Qualifications/Experience** Ability to deploy crews commensurate with qualifications and experience.

**Interface with Municipal Fire Personnel** Must understand municipal personnel capabilities and limitations and how to effectively manage these situation in wildland fire situations.

**Supervision** Direct supervision of firefighters performing wildland fire suppression activities. Direct supervision of personnel including project work, time and attendance, performance evaluations, safety meetings, post incident reviews.

Organize crew into configurations that meet incident and tactical objectives.

Evaluate, train and test crew members to ensure required skill and knowledge to perform assigned tasks.

Responsible for engine module meeting all performance requirements.

## Driving

**Standards** Supervisors and agency administrators are ultimately responsible for their employees' safety and health. By applying the following guidance, common sense, and our two to one work/rest guidelines, the safety of fire personnel who ride in or operate bureau fire apparatus will be addressed.

The Federal Motor Carriers Safety Regulation applies to commercial vehicles and interstate transportation. The federal government is exempt from 49 CFR 390. In addition, Part 390.3 – Federal Motor Carrier Safety regulations; General Applications states: (f) Exceptions. Unless otherwise specifically provided, the rules in the subchapter do not apply to... (5) The operation of fire trucks and rescue vehicles while involved in emergency and related operations. The current safety handbook (9210.53), defines driving as "the operation of a fire apparatus to or from an incident on a designated highway or roadway." This is consistent with 49CFR 390.3. Thus, if a line officer applies the two to one work/rest guidelines and common sense, she/he will provide for the safety of fire personnel. **Although, 390.3 exempts fire vehicles; it is BLM policy to require a commercial driver's license (CDL) for all operators of type 3, 4, and 5 engines.**

Posted speed limits will not be exceeded under any circumstances. In addition, fire engines will not exceed 65 mph or the appropriate speed limit (which ever is the more restrictive), even if the posted speed limit is greater than 65 mph.

Operators of engines and water tenders ensure the maximum certified gross vehicle weight (GVW) is never exceeded. Apparatus safety and operational inspections will be accomplished either on a post-fire or weekly basis. Offices are required to use "BLM Fire Engine Maintenance Procedure and Record," for guidelines and recordation. Periodic maintenance as required by the manufacturer shall be performed at the intervals recommended and properly documented. All annual inspections should include a pump test to assure the pump/plumbing system is operating at specifications.

**Lighting:** All new orders for fire engine apparatus will include an overhead lighting package in accordance with statewide standards (if established). It is highly recommended, but not required, the lighting package meet NFPA 1906 standards. FMOs may equip engines already in service with overhead lighting packages.

While off-road and during suppression activities headlights and taillights shall remain illuminated at all times the vehicle is in operation. In addition, overhead lighting (or other appropriate emergency lights) shall be illuminated whenever visibility is reduced to less than 300 feet. Light bars, flashing lights, strobe lights, and other after lighting equipment designed for emergency use shall not be used except for designated purposes during suppression operations and bona fide emergencies. Specific approval and training must be provided for these special uses.

**Chocks:** At least one chock will be carried on each engine and will be properly installed whenever the engine is parked or left unattended. This includes engine operation in a stationary mode without a driver "in place."

**Fire Extinguishers:** All engines will have at least one 5 lb. ABC-rated (minimum) fire extinguisher either in full view or in a clearly marked compartment.

**On-Board Fuels and other Flammables:** All flammables carried on BLM engines will be stored in appropriate containers clearly marked as to their contents. See your unit safety officer for current approved containers and marking requirements.

**First-Aid Equipment:** Each engine shall carry, at a minimum, a properly equipped 10-person first aid kit. It is strongly recommended that an adequate number of Water Jel burn packs be included.

**Physical Fitness Standards** Satisfactory completion of the work capacity test at the arduous level is required for all positions assigned to bureau engines. The physical fitness level will be maintained throughout the fire season.

The following physical fitness standards are required for engine module members. These fitness targets have been extrapolated from Table 7.1 and Table 7.3, page 51 of *Fitness and Work Capacity*, Second Edition, April 1997.

- 1/5 mile run in 11:40 minutes or less
- Bench Press, 0.8(lb) x body weight
- Leg Press, 2.0(lb) x body weight
- 30 situps
- 5 pullups
- 20 pushups

**Operational Procedures** All personnel assigned to BLM fire engine modules will meet all gear weight, cube, and manifest requirements specified in the national mobilization guide.

### **BLM Engine Specifications**

All engines must adhere to the BLM engine specifications. Any alteration of the major components of a bureau engine will be with the concurrence of the NIFC equipment development unit. **All engines must not exceed the GVWR of the vehicle as certified by the final manufacturer. Crews of all engines must ensure that the GVWR of the vehicle is not exceeded.** Certified weight slips are required for each engine.

Fire engine equipment will be equipped, maintained, and operated within guidelines established by DOT, State/local operating plans and procedures as outlined in the H-9216, Fire Equipment and Supply Management Handbook.



**Engine Inventories** An inventory of all supplies and equipment carried on each vehicle is essential to maintain accountability and to obtain replacement items lost on incidents. The following chart shows the stocking levels for BLM engines.

**MINIMUM  
Fire Engine Stocking Levels (NUS)**

Category	Item Description	NFES #	Type	
			4 & 5	6
<b>Fire Tools &amp; Equipment</b>	McLeod	0296	1	
	Combination Tool	0346	1	1
	Shovel	0171	3	2
	Pulaski	0146	3	2
	Backpack Pump	1149	3	2
	Fusees (case)	0105	1	½
	Foam, concentrate, Class A (5-gallon)	1145	1	1
	Chain Saw		1	1
	Chain Saw Tool Kit	0342	1	1
	Drip Torch	0241	2	1
	Portable Pump		*	*
<b>Medical</b>	First Aid Kit, 10-person	0068	1	1
	Burn Kit		1	1
	Body Fluids Barrier Kit	0640	1	1
<b>General Supplies</b>	Flashlight, general service	0069	1	1
	Chock Blocks		1	1
	Tow Chain or Cable	1856	1	1
	Jack, hydraulic (comply w/ GVW)		1	1
	Lug Wrench		1	1
	Pliers, fence		1	1
	Food (48 hour supply)	1842	1	1
	Rags	3309	*	*
	Rope/Cord (feet)		50	50
	Sheeting, plastic, 10' x 20'	1287	1	1
	Tape, Duct	0071	1	1
	Tape, filament (roll)	0222	2	2
	Water (gallon/person)		2	2
	Bolt Cutters		1	1
	Toilet Paper (roll)	0142	*	*
	Cooler or Ice Chest	0557	*	*
Hand Primer, Mark III	0145	*	*	

Category	Item Description	NFES #	Type	
			4 & 5	6
	Hose Clamp	0046	2	1
	Gaskets (set)		1	1
	Pail, collapsible	0141	1	1
	Hose Reel Crank		*	*
<b>Safety</b>	Fire Extinguisher (5 lb)	2143	1	1
	Flagging, lime green (roll)	0258	*	*
	Flagging, yellow w/black stripes (roll)	0267	*	*
	Gas Safety Can (5-gallon)	1291	*	*
	Reflector Set		*	*
<b>Vehicle &amp; Pump Support</b>	General Tool Kit (5180-00-177-7033/GSA)		1	1
	Oil, Automotive, quart		4	2
	Oil, penetrating, can		1	1
	Oil, automatic transmission, quart		1	1
	Brake Fluid, pint		1	1
	Filter, gas		1	1
	Fan Belts		1	1
	Spark plugs		1	1
	Hose, air compressor w / adapters		1	0
	Fuses (set)		1	1
	Tire Pressure Gauge		1	1
	Jumper Cables		1	1
	Battery Terminal Cleaner		*	*
	Tape, electrical, plastic	0619	1	1
Tape, Teflon		1	1	
<b>Personal Gear (Extra Supply)</b>	File, mill, bastard	0060	*	*
	Head Lamp	0713	1	1
	Hard Hat	0109	1	1
	Goggles	1024	2	2
	Gloves		*	*
	First Aid Kit, individual	0067	1	1
	Fire Shirt		*	*
	Fire Shelter w/ case & liner	0169	2	1
	Packsack	0744	2	1
	Batteries, headlamp (pkg)	0030	6	4
	Ear Plugs (pair)	1027	3	3
	Dust Mask	0131	6	4

Category	Item Description	NFES #	Type	
			4 & 5	6
Radio	Portable		1	1
	Mobile		1	1
	Batteries (for portable radio)		2	2
Hose	Booster (feet/reel)	1220	100	100
	Suction (length, 8' or 10')		2	2
	1" NPSH (feet)	0966	300	300
	1½" NH (feet)	0967	300	300
	¾" NH, garden (feet)	1016	300	300
	1½" NH, engine protection(feet)		20	20
	1½" NH, refill (feet)		15	15
Nozzle	Forester, 1" NPSH	0024	3	2
	Adjustable, 1" NPSH	0138	4	2
	Adjustable, 1½" NH	0137	5	3
	Adjustable, ¾" NH	0136	4	2
	Foam, ¾" NH	0627	1	1
	Foam, 1½" NH	0628	1	1
	Mopup Wand	0720	2	1
	Tip, Mopup Wand	0735	4	2
	Tip, forester nozzle, fog	0903	*	*
	Tip, forester nozzle, straight stream	0638	*	*
Wye	1" NPSH, Two-Way, Gated	0259	2	1
	1½" NH, Two-Way, Gated	0231	4	2
	¾" NH w/ Ball Valve, Gated	0739	6	4
Adapter	1" NPSH-F to 1" NH-M	0003	*	*
	1" NH-F to 1" NPSH-M	0004	1	1
	1½" NPSH-F to 1½" NH-M	0007	1	1
	1½" NH-F to 1½" NPSH-M	0006	*	*
Increaser	¾" NH-F to 1" NPSH-M	2235	1	1
	1" NPSH-F to 1½" NH-M	0416	2	1
Coupling	1" NPSH, Double Female	0710	1	1
	1" NPSH, Double Male	0916	1	1
	1½" NH, Double Female	0857	2	2
	1½" NH, Double Male	0856	1	1
Reducer/ Adapter	1" NPSH-F to ¾" NH-M	0733	3	3
	1½" NH-F to 1" NPSH-M	0010	6	4
	2" NPSH-F to 1½" NH-M	0417	*	*
	2½" NPSH-F to 1½" NH-M	2229	*	*

Category	Item Description	NFES #	Type	
			4 & 5	6
Reducer	1½" NH-F to 1" NH-M	0009	1	1
	2.5" NH-F to 1½" NH-M	2230	1	1
Tee	1"NPSH-F x 1" NPSH-M x 1" NPSH-M, w/cap	2240	2	2
	1½" NH-F x 1½" NH-M x 1" NPSH-M w/cap	0731	2	2
	1½" NH-F x 1½" NH-M x 1" NPSH-M w/valve	0230	2	2
Valve	1½" NH-F, Automatic Check and Bleeder	0228	1	1
	¾" NH, Shut Off	0738	5	5
	1", Shut Off	1201	1	1
	1½", Shut Off	1207	1	1
	Foot, w/ strainer		1	1
Ejector	1" NPSH x 1½" NH x 1½" NH, Jet Refill	7429	*	*
Wrench	Hydrant, adjustable, 8"	0688	1	1
	Spanner, 5", 1" to 1½" hose size	0234	4	1
	Spanner, 11", 1½" to 2½" hose size	0235	2	2
	Pipe, 14"	0934	1	1
	Pipe, 20"		1	1
Engine	Fireline Handbook	0065	1	1
	Belt Weather Kit	1050	1	1
	Binoculars		1	1
	Map Case w / maps		1	1
	Inventory List, engine		1	1
	Standards For Fire Operations		1	1

\*No minimums – carried by engines as an option, within weight limitations

**Water Tenders**

A water tender may be staffed with a crew of one (driver/operator), when it is used in a support role as a fire engine refill unit or for dust abatement. When tactically deployed, a water tender will carry a minimum crew of two, who meet the crew qualifications for type 6 engines. Tactical deployment is defined as direct fire suppression missions such as pumping hoselays, live reel use, running attack, and use of spray bars and monitors to suppress fires.

**Training and Qualifications**

**Water Tender (Support)** – CDL (tank endorsement), Hazmat awareness

**Water Tender (Tactical)** – ENOP, CDL (tank endorsement), Same as type 3,4, and 5. Tactical water tenders will carry a crew of two.

Any or all of the above performance requirements will be evaluated during the preparedness review process.

### **Noxious Weed Prevention**

To reduce the transporting, introduction, and establishment of noxious weeds on and around BLM lands, as a result of fire suppression activities, fire suppression and support vehicles should be cleaned at a predesignated area, prior to leaving the incident. On-site fire equipment should be used to **thoroughly clean the undercarriage, fender wells, tires, radiator, and exterior of the vehicle**. The cleaning area should also be clearly marked to identify the area for post-fire weed control treatments, as needed. Fire personnel are encouraged to become more familiar with the noxious weeds found on their home units.

## **Smokejumpers**

BLM smokejumpers provide wildland fire and hazardous fuels reduction services to BLM and interagency land managers.

Boise smokejumpers assist managers in wildland fire suppression, remote area fire monitoring, prescribed fire operations, and other hazardous fuels reduction operations. Boise smokejumpers provide professional, effective, and safe fire and aviation services to help land managers meet objectives.



BLM smokejumpers are also based at Forest Service bases as the need arises; Forest Service smokejumpers are available for use on BLM incidents. Smokejumpers are used on a “closest forces” basis for initial attack on wildland fires regardless of agency.

### **Policy**

Each BLM base will comply with BLM smokejumper operations standards. The arduous duties, specialized assignments and operations in a variety of geographic areas require the smokejumpers to have uniform training, equipment, communications, organization and operating procedures.

Concurrence with NICC must be obtained prior to using them in extended attack situations or configuring them as a type 1 crew.

BLM smokejumpers use the ram air (square) parachute exclusively.

## Smokejumper Bases

Location	No.	Approx Availability
Fairbanks, AK	68	May 1 - Oct 1
Boise, ID	64	May 20 - Oct 1

### Primary Spike Bases

Alaska	Great Basin
Fort Yukon	Grand Junction, Colorado
McGrath	Battle Mountain, Elko, Ely, Las Vegas,
Palmer	Reno/Stead, & Winnemucca, Nevada
	Cedar City & Salt Lake City, Utah
	Boise & Pocatello, Idaho

BLM smokejumpers have operated regularly out of the above locations, but are not limited to them. Virtually any facility with adequate runway length and fueling capabilities can serve as a base for BLM smokejumper operations.

## Operational Procedures

**Coordination & Dispatch** Smokejumpers are ordered according to area or national mobilization guides. Specific information on the coordination, dispatch, ordering, and use of BLM smokejumpers in the contiguous 48 states can be found in the *BLM Boise Smokejumpers User Guide*, and in the Alaska Fire Service operational procedures, policies, and guidelines. These publications can be acquired by contacting the BLM smokejumpers at 208/387-5426 (Boise) or 907/356-5541 (Ft. Wainwright).

**Communications** All BLM Smokejumpers will carry a programmable radio and be proficient in its use and programming procedures.

**Transportation** Smokejumper retrieval is accomplished by coordinating with the requesting dispatch center. More detailed information can be found in the guides mentioned above.

## Smokejumper Organization

The basic operational unit of the BLM smokejumpers is "one load," which consists of one plane with pilot(s), one or two spotter(s), and eight smokejumpers.

The BLM operates two smokejumper bases. Sixty-four smokejumpers and three smokejumper aircraft are stationed at the National Interagency Fire Center in Boise, Idaho. Sixty-eight smokejumpers and five smokejumper aircraft are stationed at the Alaska Fire Service at Ft. Wainwright, Alaska.

The BLM Smokejumper bases are organized as follows:

- Base Manager (GS 12)
- Ops Chief (GS 11)
- Air Ops/Lead Spotter (GS 9/10)
- Training Supervisor (GS 9)
- Loft Manager (GS 9)
- Assistant Loft Manager (GS 8)
- Spotter (GS 8)
- Squad Leader (GS 7)
- Smokejumper (GS 6)
- Rookie Smokejumper (GS 5)

### **Safety**

All BLM smokejumpers will consider risks and take appropriate action in order to fight fire safely. Tactical decisions will be based on the current and predicted situation, and will be made in accordance with the Standard Fire Orders, 18 Watch Out Situations and LCES. All aviation and parachute operations will be accomplished with the highest regard for safety and in accordance with standard operating procedures and regulations. Each crew member, supervisor, and crew is responsible for safety in all operations.

### **Training**

The rookie training program is four weeks long. During this time the trainees are evaluated to determine:

- Level of physical fitness
- Ability to learn and perform smokejumper skills
- Ability to work as a team member
- Attitude
- Ability to think clearly and remain productive in a stressful environment

BLM smokejumpers attend the following training to ensure proficiency and safety in smokejumper and fire operations:

Aircraft Operations & Safety	Disaster Fire Analysis
Parachute Jump Training	18 Watch Out Situations
Fire in Urban Interface	LCES
Fire Tactics/Environment	Initial Attack
Wilderness Fires	Extended Attack
Problem Fire Scenarios	Haines/Campbell Index
Fireline Leadership	Ten Standard Orders
Radio Use & Programming	Helicopter/engines
Parachute Rigger Refresher	CPR/First Aid
EEO Guidelines	Pumps/Saws
Situation Check	Fire Shelter Use

The following are minimum and target ICS qualifications for smokejumper personnel:

Position	Minimum Qualifications	Target Qualifications
Overhead Cadre	ICT3, DIVS	OSC2, ATGS
Spotter	ICT3, DIVS	ATGS
Squad Leader	STCR, ICT4	DIVS, ICT3
GS-6 Smokejumper	CRWB	ICT4, STCR
GS-5 Smokejumper	FFT1, FFT2	CRWB

**Physical Fitness Standards** The following smokejumper national minimum standards have been established.

- 1.5 mile run in a time of 11:00 minutes or less
- 45 situps in 60 seconds
- 25 pushups in 60 seconds
- 7 pull-ups
- 110 lb. packout over 3 miles/level terrain/90 minutes

In addition to these national standards, BLM smokejumpers have an established fitness goal. Although these standards are voluntary, smokejumpers are strongly encouraged to meet them:

- 1.5 mile run in a time of 9:30 minutes or less
- 3 mile run in a time of 22:30 minutes or less
- 60 situps
- 35 pushups
- 10 pullups

## Interagency Hotshot Crews

Interagency Hotshot Crews provide a safe, organized, mobile, and highly skilled hand crew for all phases of wildfire suppression.

### Policy

BLM IHC standards provide consistent bureau-wide planning, funding, organization and management of the bureau IHCs.

The sponsoring unit will ensure compliance with the established standards. The arduous duties, specialized assignments, and operations in a wide variety of geographic areas required of IHCs dictate that training, equipment, communications, transportation, organization, and operating procedures are uniform for all BLM IHCs.

### IHC Organization

Each BLM IHC will be to have a minimum of seven career (PFT or LT/WAE) positions. Individual crew structure will be based on local needs using the



following standard positions: superintendent (GS 8/9), assistant superintendent (GS 7/8), squad leader (GS 6/7), skilled firefighter (GS 5/6), and crew member (GS 2/3/4).

BLM IHCs will have a minimum of three individuals with a red card rating of helispot manager.

### **BLM Type 1 IHCs**

Diamond Mountain	Susanville, CA
Silver State	Carson City, NV
Kern Valley	Bakersfield, CA
Chena	Fairbanks, AK
Midnight Suns	Fairbanks, AK
Denali	Fairbanks, AK
Jackson	Jackson, MS
Vale	Vale, OR



### **Safety**

BLM IHCs will promote and maintain a passion for safety. Tactical crew deployment will not be initiated or continued without strict compliance to the Standard Orders, 18 Watch Out Situations, LCES, and downhill and indirect line construction requirements. It is the responsibility of each crew member to function safely.

### **Training**

All members of the IHC must receive an annual minimum of 80 hours of training. The crew will not be used for fire or project assignment until this training is completed. For additional requirements concerning training and qualifications please refer to the *Interagency Hotshot Crew Operations Guide*.

### **Physical Fitness Standards**

The pact test (arduous) of the work capacity tests is the minimum physical fitness requirement for BLM IHCs. For additional requirements concerning physical fitness please refer to the *Interagency Hotshot Crew Operations Guide*.

### **Operational Procedures**

The minimum tour of availability—**excluding** required training periods—for BLM IHCs will be 130 calendar days for crews in the lower 48 states and 90 calendar days for crews in Alaska. For additional requirements concerning operational procedures please refer to the *Interagency Hotshot Crew Operations Guide*.

### **Communications**

BLM IHCs will provide a minimum of five programmable multi-channel radios per crew.

## Transportation

Crews will be provided adequate transportation. This should not exceed four vehicles. All vehicles must adhere to the certified maximum gross vehicle weight limitations. For additional requirements concerning ground transportation, refer to the *Interagency Hotshot Crew Operations Guide*.

## Type 2 Crews

Type 2 hand crews consist of agency personnel, state crews, contract crews, casuals or emergency firefighters. These crews will be formed into 20-person (16-person in Alaska) firefighting crews for fireline duties. Individuals must have knowledge in the use of handline construction techniques, fire tool use, mopup, and fire behavior.



The bureau sponsors three type 2 crews:

- Vale District Snake River Crews
- Alaska Fire Service EFF Village Crews
- Montana Indian Firefighters (MIF)

There are 25 Snake River Valley Crews in Oregon. Crews come with a crew representative, a crew chief, three lead crew people, and 15 crew members equipped as follows:

- Available for 21 days
- Equipped with all PPE, including shelters
- No radios
- Handtools, if requested, no chainsaws
- Ground transportation provided (payments made by Vale District on return)
- One interagency resource representative (IARR) per four crews

Snake River Valley crew representative (CREP) roles and responsibilities include: liaison between crew, the incident, and Vale Dispatch. The CREP will attend all incident briefings and relay assignment instructions and safety issues to the crew chief who will brief the crew. All assignments for the crew will be placed through the CREP. The CREP is responsible for the crew's safety and supervision and will accompany the crew on all fire line assignments and during travel to and from the incident(s). The CREWP is responsible for paperwork that pertains to the crew, i.e., time sheets, medical and accident forms.

Alaska has a total of 73 type 2 crews. For assignments within the state the crew is made up of 16 individuals with a crew boss, three squad bosses, and 12 crew members. During the fire season, Alaska supports the need for national type 2 crews by maintaining 40 crews. Alaskan type 2 crews assigned to the lower 48

will come with a crew representative, a crew boss, three squad bosses, and 15 crew members. They are equipped as follows:

- Available for 21 day assignment
- Equipped with all PPE including shelters
- Four radios per crew
- No handtools or chainsaws
- One interagency resource representative (IARR) with administrative assistant per five crews

Montana has five Montana Indian Firefighter crews. Other type 2 Crews are available from a variety of sources ordered through the Geographic Area Coordination Center. Specific information about type 2 crews can be obtained from the Geographic Area Coordination Center. Following is a list of the approximate numbers of crews available on an interagency basis:

<b>Geographic Area</b>	<b>#</b>		
Alaska	40	Southern California	32
Northern Rockies	70	Northern California	43
Rocky Mountain	20	Northwest	46
Southwest	78	Southern	43
Western Great Basin	9	Eastern	20

All crews are ordered through the dispatch/coordination system.

### **National Minimum Standards (Physical and Training)**

- Assigned crew overhead (crew boss-squad boss) must meet the minimum standards set forth in NWCG 310-1.
- Individuals must meet the arduous national physical fitness level (.
- Individuals must be available for 21-day minimum assignments.
- Crew members (previously covered) are required to complete S-130 and S-190 prior to crew assignment. Field exercise using classroom training experience is recommended.

## **Helitack**

Helitack crews provide highly trained and skilled personnel to initial attack fires, extended attack, and project fires, manage helicopter operations and accomplish resource management objectives.

### **Policy**

The BLM has adopted the *Interagency Helicopter Operations Guide (IHOG)* as its policy. Wording in the IHOG denotes mandatory, required except for justifiable reasons, and optional compliance. "Must" and "shall" mean mandatory; "ought" and "should" mean required unless justified; and "may" and "can" mean optional.

## Organization

Each helitack crew will have the minimum number of personnel prescribed by the IHOG and based on helicopter type. Individual crew structure and career status (PFT or WAE) will be based upon local needs, with the following positions:

Helicopter Manager (HEMG)	1 season as an assistant HEMG or 2 seasons as a lead HECM
Assistant Helicopter Manager	2 seasons as a HECM or lead HECM
Lead Helicopter Crew Member	1 season as a HECM
Helicopter Crew Member (HECM)	should have at least 1 season of firefighting experience (FFT2)

The HEMG and assistant HEMG must also be qualified as ICT4. Crew members must be at least FFT2 qualified.

## Safety

BLM helitack crews provide safe, cost-efficient, and effective aviation services in support of bureau and interagency goals and objectives. Personnel involved in helicopter operations must follow rules, regulations, and mandates specified by the FAA, OAS, bureau, contracts and operational procedures identified in the IHOG.

A continual risk assessment will be made during helitack and aviation missions. For further information on the risk assessment and management process, see IHOG, Chapter 3.

## Training

The primary helitack crew mission is to fight fire; therefore, all members will meet **minimum** fire qualifications as prescribed by the NWCG 310-1 and BM 9215. In addition, personnel will meet the IHOG training and experience requirements prescribed for each position. The following combines the 310-1 and IHOG training requirements:

Helicopter Crew Member	S-130, S-190, S-217
Lead Helicopter Crew Member*	S-201, S-211, S-212
Assistant Helicopter Manager	S-200, S-205, S-205, S-230, S-260, S-271, S-290, and Contracting Officer's Authorized Representative/ Project Inspector
Helicopter Manager	Biennial attendance at a helicopter manager workshop

\* The lead helicopter crew member should attend as many of the courses required for assistant manager as possible to lessen the training impact when the individual becomes an assistant manager or manager.

## Physical Fitness Standards

All personnel on helitack crews must meet the physical fitness requirements for arduous assignments.

### **Operational Procedures**

The IHOG specifies how helicopter operations should be conducted whether in support of wildland fire or natural resource missions; and guides for bureau helitack and helicopter operations. The IHOG has been adopted and serves as the interagency standard for operations, and has been implemented by the NPS, BIA, BLM, and Forest Service. The FWS has implemented it on the basis of regional need and some states use the IHOG.

Exclusive-use helicopters and helitack crews are dispatched and controlled locally by the administrative unit. Type 2 helicopters and helitack crews are a national resource, and available for fire assignment when ordered by NICC, unless otherwise already committed.

Properly using and maintaining equipment used in helitack and helicopter operation, by both ground and flight crews, is essential to safety. Since much of this equipment is expensive, proper maintenance is also cost effective.

Required equipment items for helitack crews and helicopters changes frequently. Consult the IHOG (Chapter 9) and the exact terms of the procurement document, if uncertain about requirements.

### **Communications**

BLM helitack crews will have a minimum of four programmable multi-channel FM radios per crew, and at least one multi-channel VHF-AM programmable radio in the primary helitack crew (chase) truck.

### **Transportation**

Due to the amount and cost of the specialized equipment required for a helitack operation, a dedicated vehicle(s) with adequate storage and security will be provided for helitack crews. The GVWR of the vehicle(s) will be dependent upon the size class of the helicopter and the number of helitack crew members.

## **Helicopter Rappelling**

Fire rappel operations provide safe, efficient, and effective initial attack and helispot construction.

### **Policy**

All fire rappel operations must be in compliance with the *Interagency Helicopter Rappel Guide* (IHRG). Initiation of and participation in any fire rappel and program must be approved by the Director, Office of Fire and Aviation.

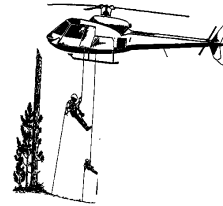
The objective is to establish standardization procedures and techniques to allow individuals or crews to be used for a variety of missions under varying conditions. To aid in this approach, methods are incorporated to cross-train personnel in more than one rappel system and more than one specific helicopter type.

## Training

**Spotter Qualifications and Training** Each spotter and rappeller shall be certified by an approved and qualified rappel check spotter. BLM check spotters shall be annually-approved by the state aviation manager (SAM).

Check Spotter Minimum Requirements:

- Must have been a qualified spotter for two seasons.
- Must have assisted in training at least two spotters.
- Must be recommended by an agency helicopter operations specialist and have demonstrated ability as an instructor.



Rappel Spotter Training and Certification Prerequisites:

- Meet the training, experience, and certification requirements for a helicopter manager as stated in the IHOG and have one season of rappel experience, or two seasons of rappel experience.
- For a new program within a bureau or agency, it will be the responsibility of the certifying officials and local managers to designate initial spotter trainees.
- Fire program spotter candidates must have a minimum of three seasons of fire experience.

Spotter Initial Training

- Successfully complete the IHRG rappel spotter training course.
- Spotters shall be certified to spot from specific models of helicopters. Each model of helicopter has unique rigging and exit procedures.
- All training shall be under the supervision of an approved check spotter.

**Model-Specific Training** In order to be certified as a spotter for a different model of helicopter, a spotter must be trained by a spotter who is current in the new model. Spotters then must be approved by a qualified check spotter prior to performing operational spots in any model that they are not currently certified to spot from.

If an individual cannot meet all of the minimum requirements, the check spotter shall not qualify the trainee as a heli-rappel spotter.

**Rappeller Initial Training and Certification** Refer to IHRG.

## Operational Procedures

**Rappel Proficiency** Each rappeller must make at least one error-free helicopter or simulator rappel in any 14 consecutive days. If proficiency is lost (a simulator or helicopter rappel has not been completed in the last 14 days), an error-free simulator or mockup and helicopter proficiency rappel must be completed prior to any operational rappels.

**Spotter Proficiency** Each spotter must make at least one error-free helicopter or simulator spot in any 14 consecutive days. This mission must include a full load of rappellers and cargo deployment. If proficiency is lost (a simulator or helicopter spot has not been completed in the last 14 days), an error-free simulator or mockup and helicopter proficiency spot must be completed prior to any operational spots.

### **Equipment, Accessory, and Procedure Development**

**Process for BLM** When a field user has a need for a new or improved piece of equipment and/or procedure, documentation of that need must be submitted to the national steering committee where it will be evaluated based on the above objectives and the following criteria: critical safety, national focus, and priority.

All equipment used in fire rappel operations must be approved by aerial attack systems specialist for the Forest Service and the national aviation operations specialist for BLM.

**Helicopter Cargo Let-Down Procedures** Cargo let-down augments helicopter capabilities, but does **not** replace long-line operations. Exposure and risk assessment must be addressed when deciding which type of helicopter cargo delivery system to use.

Helicopter cargo let-down is defined as the deployment of cargo from a hovering helicopter with an approved webbing/rope, descent device, and auxiliary equipment. Refer to IHRG. Only personnel trained and qualified will use this procedure.

Note: No person shall attempt cargo let-down without the training and guidance of a person qualified and experienced in cargo deployment, and written approval of the state aviation manager.

## Airtankers

Airtankers are a national resource. Geographic areas administering these aircraft will make them available for initial attack or project fires on a priority basis. All airtanker services are obtained through the contracting process; none are owned

or operated by the federal government (except the C-130 MAFFS, which are Air National Guard resources and primarily used to supplement the contract fleet when needed).

The Interagency Airtanker Board ( IATB), consisting of Forest Service, DOI, and state forestry agencies, is responsible for approving the contract airtanker fleet.

**Categories**

Airtankers are distinguished by the size of retardant load that they carry:

- Type 1 – over 3000 gallons
- Type 2 – 1800 to 3000 gallons
- Type 3 – 800 to 1800 gallons
- Type 4 – less than 800 (in single engine airtankers)



**Qualifications**

Airtanker crews fall into two categories: initial attack qualified, and initial attack candidates.

**Initial Attack Qualified** Means that the crew may drop retardant on arrival at a fire without aerial supervision. This does not negate the requirement for a lead plane, if ordering agency policies, terrain, or congested areas dictate otherwise.

**Initial Attack Candidate** Refers to a crew that is in the process of acquiring the experience, training, and prerequisite drops, and in the interim require aerial supervision.

**Tanker Bases & Reload Facilities**

Tanker bases may be type 1 bases, meaning they have tankers assigned there, or reload facilities. They may be contract bases or operated on Force Account, and may be operated by the BLM, Forest Service, or state agencies. Types of retardant (dry powder, liquid concentrate, etc.) will vary with locations.

Northern	Rocky Mountain	Southwestern
Billings, MT Coeur d’Alene, ID Grangeville, ID Helena, MT Kalispell, MT W. Yellowstone, MT	Broomfield(Jeffco), CO Durango, CO Grand Junction, CO Greybull, WY Rapid City, SD	Alamogordo, NM Albuquerque, NM Ft. Huachuca, AZ Phoenix, AZ Prescott, AZ Roswell, NM Silver City, NM Winslow, AZ



<p><b>Great Basin</b> Battle Mountain, NV Boise, ID Cedar City, UT Minden, NV McCall, ID Pocatello, ID Salt Lake City, UT Stead, NV</p> <p><b>Northwest</b> Everett, WA Klamath Falls, OR LaGrande, OR Lakeview, OR Medford, OR Omak, WA Redmond, OR Troutdale, OR Wenatchee, WA</p>	<p><b>California</b> Bishop, CA Chester, CA Chico, CA Columbia, CA Fresno, CA Goleta, CA Grass Valley, CA Hemet, CA Hollister, CA Lancaster, CA Montague, CA Paso Robles, CA Porterville, CA Pt. Mugu, CA Ramona, CA Redding, CA Rohnerville, CA San Bernadino, CA Sonoma, CA Stockton, CA Ukiah, CA</p>	<p><b>Alaska</b> Delta Junction, AK Fairbanks, AK Ft. Yukon, AK Galena, AK McGrath, AK Palmer, AK Tanacross, AK</p> <p><b>Southern</b> Asheville, NC Ft. Smith, AR Knoxville, TN Lake City, FL London, KY Tallahassee, FL Weyers Cave, WV</p> <p><b>Eastern</b> Bemidji, MN Brainard, MN Ely, MN Hibbing, MN</p>
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The fleet provides a mix of capabilities and availability. Certain parameters for the operation of airtankers are agency-specific. For dispatch procedures and limitations, startup/ cutoff times, specific requirements for air tactical group supervisor (ATGS) or airtanker coordinator, and other operational considerations, refer to geographic area mobilization guides and the *Interagency Airtanker Base Operations Guide*.

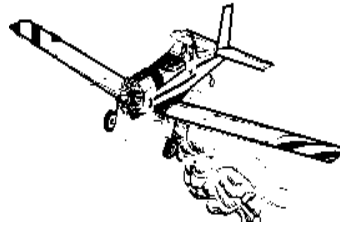
### BLM Contract Airtankers

Coordination		Type	Dates (approximate)
Area	Base		
AK	AFS	2	5/20 – 8/17
AK	AFS	2	6/1 – 8/29
NR	Billings	2	7/13 – 9/30
GB	Cedar City	1	6/1 – 7/14
RM	Grand Junction	1	5/23 – 10/13
GB	Minden	1	6/8 – 9/3
GB	Stead	2	6/1 – 9/8
CA	Porterville	2	6/2 – 8/17
GB	Pocatello	1	6/23 – 9/29
SW	Roswell	2	6/8 – 7/14

Release Date: 4/99

## Single Engine Airtankers

So much forest and rangeland is remote and inaccessible to ground equipment that land managers rely heavily on aerial applications to assist fire suppression activities. For every fire, whether in the initial attack or extended attack stage, there is an optimum mix of aircraft, equipment, components, tank capacities, and support facilities. Single Engine Airtankers (SEATs) are an effective, efficient and safe suppression tool that are not a national resource and can, with proper planning, be obtained on a local basis.



Even though these aircraft have been effectively used on extended attack fires, they are most effective when included as an integral part of the initial attack strategy.

### Policy

Field offices or sponsoring units using SEATs will ensure the aircraft complies with OAS and bureau standards, prior to use. The safety, cost efficiency, management experience and special operation skills required by the pilot and the user dictate that training, equipment, communications, organization, and operating procedures are uniform for all using units.

### Single Engine Airtanker Standards

For interagency SEAT Standards refer to OAS exclusive use and CWN contract provisions, and the *Interagency SEAT Operations Guide (ISOG)*, which has been finalized and approved as policy.

### Location

Since SEATs are normally acquired through the CWN contract process, the home base of each aircraft varies. In addition to the SEATs listed below, approximately 20 CWN are available. A limited number of SEATs are on exclusive-use contracts.

500-gallon SEATs		799-gallon SEATs	
Kingman, AZ	60 days	Safford, AZ	1 <sup>st</sup> half of contract
Winnemucca, NV	60 days	Miles City, MT	2 <sup>nd</sup> half of contract
Caliente, NV	70 days	Bemidji, MN *	
St. George, UT	70 days	White River, AZ *	
		San Carlos, NM *	

\* Sponsored by BIA

## SEAT Organization

There is no national standard established for SEAT operations organization. Conceptually SEATs give fire managers a tool that is local in nature and self-contained. Self-contained means the operator is the only person allowed to fuel, reload, and support the aircraft in accordance to BLM and OAS standards. The ISOG defines operating standards that have been approved as policy.

The BLM has developed a SEAT manager (SEMG) position with accompanying curricula, including a training course, task book and experience requirements (refer to the ISOG, NFES 1844). With the increased use of SEATs nationwide, the demand for this position has increased accordingly. The roles and responsibilities of the SEMG parallel that of the helicopter manager. **The assignment of a SEMG is required for all SEAT assignments.**

## Safety

All SEAT operators and users will adhere to DOI/BLM/Forest Service safety standards. Flight operations, pilot requirements, flight crew duty and flight limitations, and the use of personnel protective equipment (PPE) are addressed in the above referenced standards and will be adhered to by the both the operator and the user. Passion for safety will be maintained in SEAT operations; non-compliance with operational and safety standards will mean unavailability of SEATs.

## Training

All SEAT pilots will meet the minimum fire training standards as described in Supplement 14.

Completion of an airtanker fire behavior orientation program has been approved by the government and shall include:

- Fire behavior
- Air/Ground tactical operations
- Incident organizational structure and terminology
- Fire perimeter designation
- Radio communications and procedures
- Use of retardants and suppressants
- Mountain flying techniques
- Bureau specific operational guidelines as appropriate

## Operational Procedures

Using SEATs in conjunction with other aircraft over an incident is standard practice in BLM. However, other agencies or geographical area mobilization guides may specify different procedures and limitations.

Depending on location, operator, and availability, SEATs are capable of dropping either suppressants, water, or other approved retardants. The fixed tanks in these aircraft are fiberglass.

Because of the load capacities of the SEATs—300 to 800 gallons—quick turn-around times should be a prime consideration of the user. SEATs are capable off dirt, gravel, or grass strips (pilot must be involved in selection of the site), but a support vehicle reduces turn-around times. Volunteer fire departments have helped in many rural areas sustain the operation's water needs.

Reloading at established airtanker bases and reload bases is authorized. (SEAT operators carry the required couplings.) All base operating plans must include SEAT loading criteria.

Pre-positioning of SEATs is recommended during periods of extreme fire danger. The CWN process allows for the possibility of price reduction for pre-planned availability and operations that may last 14 days or more.

### **Communications**

All SEATs must have a minimum of a VHF-AM and VHF-FM (programmable) multi-channel radios.

## **Leadplanes**

Leadplanes are national resources and are responsible for the tactical deployment of airtankers over an incident. Leadplane pilots evaluate flight hazards, visibility, wind, storm activity, turbulence, terrain, and other factors to ensure that aerial suppression operations are conducted safely and effectively. Congested airspace, populated areas, and the limited maneuverability of large airtankers all contribute to the need for leadplanes.



### **Policy**

A leadplane is required on an incident when;

- The airtanker pilot is not initial attack rated.
- Operations are over congested areas. (Forest Service requirement. BLM requires that a leadplane be on order, but operations may commence prior to arrival of the leadplane.)
- MAFFS C-130 airtankers are assigned to the incident.
- When foreign government airtankers are being used.
- When two or more airtankers are over the incident.
- When the airtanker flight crew request a leadplane.

## Operating Practices

At the present time, a number of leadplane techniques are used. The three most frequently used are:

- 1) The lead plane orbits the fire at 1,000 feet above ground level and directs the airtankers by radio. This high level technique affords better visibility of both the ground and air operations, but radio exchanges are often time consuming, which is costly.
- 2) The lead plane performs a low-level "show me" pass with the airtanker observing from a higher vantage orbit. In this manner the lead plane can switch positions with the airtanker and observe the drop from a higher vantage point.
- 3) The lead plane performs a low-level "follow me" pass, simulating the airtanker run, and identifies the target by radio, by rocking its wings over the target, smoke trail, pull up, or by other methods of identifying the target to the airtanker captain.

The leadplane pilot also determines if there are firefighting personnel or others in the proposed drop area, and if so, notifies the ATGS or incident commander so people on the ground can be warned or moved.

## Organization

Leadplanes are operated by both the Forest Service and BLM. Forest Service leadplanes are usually Beechcraft Barons, and BLM has four King Air leadplanes. Forest Service Leadplanes are assigned by region, and individual Regions have varying numbers of leadplanes and pilots from year to year.

BLM leadplanes are assigned by state, but are highly mobile across geographic areas when required. BLM operates four leadplanes:

2 Alaska	AFS
1 Nevada	BLM pilot
1 Arizona-Idaho	BLM pilot (part of season in SW, rest of season in GB)

## Operational Considerations

Some operating practices are specific by agency. For instance:

- Forest Service requires leadplanes to be ordered when *two or more* airtankers are over the incident. BLM requires *aerial supervision* when *more than two aircraft* are over the incident.

**Note:** *Assigned to the incident* is not the same as *over the incident*. For BLM purposes, two airtankers could be assigned to the same incident, but if they are not in a pattern over the fire together, they are not considered "*over the fire*." If one tanker is in a pattern in the vicinity of a fire and another is ferrying to or from a reload, then only one tanker is *over the fire*.

**Note:** BLM does not require leadplanes to operate SEATs. The “more than two aircraft” standard for requiring aerial tactical supervision can be met with an ATGS.

- Forest Service policy requires a leadplane to be present and in tactical control of an airtanker prior to retardant drops over a congested area. BLM policy requires a leadplane **be on order** prior to this drop, but operations may proceed before the lead plane arrives, if fire conditions warrant.
- For operations over congested areas, Forest Service policy is that air operations be conducted under an FAA Grant of Exemption No.392, from FAR 91.119. The BLM does not operate under this exemption, opting instead to operate under the parameters of FAR Part 137.
- Some of the BLM leadplanes also carry an ATGS. In those instances the leadplane may perform both the leadplane and ATGS missions.

### **Startup/Cutoff Times**

Normally, a leadplane pilot will allow an airtanker to arrive over an incident to drop retardants from 30 minutes prior to official sunrise to 30 minutes after official sunset. *However*, drops may be conducted earlier (and later) than these periods and outside of civil twilight in Alaska providing the following conditions are met:

- The leadplane pilot has determined visibility and other safety factors are suitable for dropping retardant; and
- notifies the appropriate dispatcher of this determination.

An airtanker, crewed by an initial-attack-rated captain, may be dispatched to arrive over a fire *without aerial supervision* by an ATGS or leadplane providing the airtankers arrival and drop activities are conducted between 30 minutes after official sunrise and 30 minutes before official sunset in the lower-48 states and during periods of civil twilight in Alaska.

## **Air Tactical**

The ATGS provides direction, coordination and supervision to aerial suppression resources. The ATGS assures safe and effective air operation to support ground operations. The ATGS is used on initial attack to project incidents to ensure safe aerial and ground suppression operations, monitor fire behavior, and provide aerial oversight guidance for firefighters. The minimum red card qualifications for an ATGS is division supervisor. Although not required, it is highly recommended that ATGS candidates have an aviation background.

## Policy

Aerial supervision over an incident is required over when conducting operations over congested areas. An ATGS or airtanker coordinator (ATCO) is required for aerial supervision.

Aerial supervision over an incident is recommended when there are more than two aircraft or a mix of aircraft over the incident at the same time. An ATGS, ATCO, or smokejumper spotter during smokejumper operations, is recommended for aerial supervision.

During initial response operations the recommended aerial supervision in priority order with regard to safety and efficiency is as follows:

- 1 ATGS
- 2 ATCO
- 3 Smokejumper spotter
- 4 Helicopter manager

If aerial operations will continue beyond initial response, an ATGS or ATCO will be ordered. Aerial supervision response will be commensurate with expected complexity.

The only approved fixed-wing low-level operations for fire suppression activities are leadplane and paracargo dropping missions. These missions will be conducted with approved and qualified pilots, aircraft, and aircrew.

Air tactical missions require full PPE—flight suit or fire shirt and pants, gloves, and boots.

Fire aircraft will use transponder setting of 1255 when over incident or not in controlled airspace.

## Operational Procedures

Currently there are four operational modes for BLM ATGSs.

- 1) The ATGS is in the aircraft with a leadplane **qualified** pilot. In this module, the ATGS and ATCO missions are combined, with low-level follow me and show me performed as well as the command and control function of the ATGS. Ground and flight familiarization in aircraft type and with avionics is required prior to an ATGS becoming operational in this module. Leadplane pilots and qualified air tactical personnel are responsible for familiarization. Currently only BLM and Alaska state DOF ATGS are authorized to be on the aircraft, if low-level flight is anticipated. Other ATGS personnel are not authorized to be part of this module. Authorization for other agency personnel to operate in this module must be approved by the BLM aviation program leader. Aerial or incident complexity and environmental conditions will dictate when the module ceases low-level operations.

- 2) The ATGS is in a contracted, CWN, or ARA (rental) fixed-wing aircraft in orbit over the incident. **This is not a low-level flight scenario, it will always occur above 500 AGL, all PPE and pilot/aircraft carding requirements must be met.**
- 3) The ATGS is in a contracted, CWN, or ARA (rental) rotary wing aircraft. This mode of operation occurs most often on type 1 or type 2 incidents. (Refer to aviation operations chapter.)
- 4) The ATGS is on the ground with a vantage point of the entire incident. Generally only used due to an aircraft shortage, it is effective when the entire area can be viewed from the ground and the ATGS has VHF-AM and VHF-FM radio communication capability. Helicopter coordination has been used extensively in this manner.

**The following is a guide to obtaining an air attack platform, in priority order for safety and efficiency:**

1. high wing, twin engine;
2. high wing, single engine;
3. low wing, twin engine.

Any aircraft selected should have as a minimum of two **720 channel VHF-AM** radios and one **VHF-FM** with stand alone guard; the pilot will be carded to perform the air tactical mission.

#### ***Operational Considerations***

- A relief ATGS and aircraft should be ordered for sustained operations to ensure continuous coverage over an incident.
- Personnel who are performing aerial reconnaissance and detection should not perform air tactical duties unless they are fully qualified as an ATGS.

#### **Organization**

The ATGS is an identified position in the incident command system with training and qualifications prescribed by the NWCG 310-1. The ATGS is a tactical position with two subordinate specialty positions to assist when required – airtanker coordinator (ATCO) and helicopter coordinator (HLCO). The ATCO, commonly called a leadplane pilot, deals with fixed-wing retardant aircraft, while the HLCO deals with tactical coordinator and airspace management or rotary wing aircraft. Some geographic areas and agencies have full time ATGS personnel, while the majority of field units rely on a qualified local person or order the position through the coordination system to perform the job.



## Suppression Chemicals & Delivery Systems

### Foam

Technical guidelines for equipment operations and general principles of foam application are discussed in "Foam vs Fire, Class A foam for wildland fires." NWCG, PMS 446-1, NFES 2246, Second edition, October 1993 and "Foam vs Fire, Aerial applications." NWCG, PMS 446-3, NFES 1845, October 1995.

**Policy** Standard operating procedures for fire management and suppression activities involving water as the suppression or protection agent delivered by engines and portable pumps shall include the use of an approved class A foam concentrate to improve the efficiency of water except near water-courses where accidental spillage or over spray of the chemical could be harmful to the aquatic ecosystem. Foam can also be delivered by helicopters and SEATs.

### Operational Guidelines

**Proportioners** –Bureau standards for foam proportioners on engines is the automatically regulated pressure bladder system (Robwen Flowmix 500). These devices are available as a foam kit for use with portable pumps. Automatic proportioners are required for Compressed Air Foam Systems to prevent slug flow.

Manually regulated proportioners, such as around-the-pump proportioners, in-line and by-pass eductors, and suction-side regulators, are acceptable for remote portable pump use when the operator understands device limitation.

Proportioners should be flushed after every operational period of use.

**Conventional Nozzles and Backpack Pumps** – Mix ratio is 0.1-0.3%. Hydraulic considerations are the same as water.

**Aspirating Nozzles** – Mix ratio is 0.2 - 1.0%, generally 0.5%, depending on nozzle, foaminess of concentrate used, and type of application. Adjust the ratio to best meet needs and objectives. Foam production and delivery should occur as readily as would water delivery.

### Compressed Air Foam Systems (CAFS)

- 1) Keep static air and water pressures equal.
- 2) Start with a 0.3% mix ratio; adjust if necessary.
- 3) Generally operate with 1 cfm of air for every gpm of water; adjust if necessary.
- 4) Employ a motionless mixer or 100 feet of hose to develop foam in the hose.
- 5) Foam production and delivery should occur as readily as water delivery.

**Wildland/Urban Interface and Vehicle Fires** – 1.5 inches is the recommended minimum hose diameter when using foam on wildland/urban interface and vehicle fires according to bureau policy.

### **Safety**

**Personal Safety and Protection** – BLM uses foam concentrates and solutions which have been tested and meet minimum requirements with regard to mammalian toxicity (according to “International specification for Class A foam for wildland fires, aircraft or ground application” August 1993): acute oral toxicity, acute dermal toxicity, primary skin irritation, and primary eye irritation.

All personnel involved in handling, mixing, and applying foam concentrates or solutions should be trained in proper procedures to protect both their health and safety as well as that of the environment.

All personnel must follow the manufacturer's recommendations as found on the product label and product material safety data sheet (MSDS).

Approved foam concentrates are mildly to severely irritating to the eyes. Anyone involved with or working in the vicinity of foam concentrates should use protective splash goggles.

Containers of foam concentrate or solutions, including backpack pumps and engine tanks, should be labeled to alert personnel that they do not contain plain water, and that the contents must not be used for drinking purposes.

Slickness is a hazard at storage areas and unloading and mixing sites. Because foam concentrates and solutions contribute to slippery conditions, all spills must be cleaned up immediately.

Personnel applying foam should stand in untreated areas. A foam blanket can be dangerous to walk through because it conceals ground hazards. Also, foam readily penetrates leather boots, resulting in wet feet.

All safety precautions associated with ground crews near retardant drops also apply to aerial foam drops.

**CAFS Safety** – Personnel assigned to operate a compressed air foam system must be trained in safe CAFS operations including operating the nozzle, working around charged hose lays, and how to prevent slug flow.

### **Long-Term Retardant**

Principles of application and coverage levels are outlined in NFES 2048, PMS 440-2.

**Policy** Using approved long-term retardants in support of wildland fire suppression efforts is standard in BLM fire management and planning. The retardants are most often delivered in fixed- or rotor wing aircraft. Approved retardants currently contain sulfate or phosphate salts.

### **Operational Principles**

- Use retardant drops before an immediate need is recognized; pretreat according to expected fire behavior.
- Retardant dropped in the morning hours will still be effective in the afternoon.
- Build progressive retardant line.
- Use retardant drops to cool areas (reduce flame length), as necessary, in support of ground forces.
- Be sure the line is clear of personnel prior to dropping retardant.
- Be alert for gaps in retardant lines.
- Expect fixed wing vortices and rotor wing down wash.
- Wildland fire can burn around, under, spot over, and with enough intensity through retardant lines.

**Safety** Approved long-term retardants are tested to meet specific minimum requirements regarding mammalian toxicity in the following areas: acute oral toxicity; acute dermal toxicity; primary skin irritation; and primary eye irritation.

Some approved long-term retardants are mildly irritating to the eyes. Persons that mix or handle retardants and those near retardant drops should use protective goggles.

Retardant drops can cause slippery footing and slippery tool handles. Take care when walking through areas that have had retardant applied; tool handles should be wiped clean of retardant.

Personnel involved in handling, mixing, and loading retardant should be trained in proper procedures to protect their health and safety.

Personnel should not be under a retardant drop. The target or drop area must be clear of personnel prior to the drop.

Persons downrange, but in the flight path of intended retardant drops should also move to a location that will decrease the possibility of being hit with retardant if a drop goes long.

Persons near retardant drops should be alert for objects (rocks, etc.) that the drop could dislodge.

**Environmental Guidelines** – Due to the sensitivity of aquatic habitats, the application of foam and retardant directly into bodies of water must be avoided. Leave at least a 100- to 200-foot buffer zone from the water.

To reduce impacts to the environment:

- During training or briefings, inform field personnel of the potential danger of fire chemicals, especially concentrates, in streams and lakes.
- Locate foam and retardant mixing and loading areas and dip-tank sites to minimize contact with natural bodies of water.
- Exercise care to avoid spills at mixing, loading, and application areas—especially near streams.
- Notify authorities promptly of any fish kill or spill into a water body.
- Minimize or avoid dipping from rivers or lakes with a helicopter during foam and retardant operations. Set up an adjacent reload site and manage the foam and retardant in portable tanks, or terminate the use of chemicals for that application.

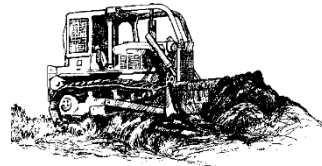
## Dozers

BLM dozers and operators provide safe and efficient suppression and support capability for local and project fires.

### Policy

Personnel assigned as dozer operators will meet the **training standards** for a Firefighter 2 (FFT2). This includes all safety and refresher training including annual review of the 10 Standard Fire Orders and 18 Watch Out Situations, fire shelter use and deployment, and LCES. While on fire assignments all operators and support crew will meet PPE requirements for all firefighters including the use of aramid fiber clothing, hard hats, fire shelters, etc.

Since dozers operate independently, communication is essential between operators, support crew, and supervisors. BLM dozers will be equipped with programmable two-way radios with a configuration to allow the operator to monitor radio traffic.



Operators of dozers and transport equipment will meet the Department of Transportation certifications and requirements regarding the use and movement of heavy equipment. Including driving limitations, commercial drivers license, pilot car use, etc.

There is no physical fitness standard for BLM dozer operators.

**Radio Communications** Good radio communications is key to effective operations during incidents, including wildland fire suppression. Radio communications provide operation coordination, tactical information flow, and command/control of personnel and resources. It is an important aspect of overall operational safety.

### **Policy**

Type 1 crews will have a minimum of five handheld radios per crew. Type 2 crews will have a minimum of one radio per crew. Engine modules will have a minimum of one handheld radio per crew, in addition to the mobile radio in the engine. During incident response, operational supervisory positions will be equipped with a handheld radio.

### **Dispatch Recorders**

Recording devices will be used by each BLM dispatch office or interagency office dispatching BLM resources. The purpose is to record all radio communications during emergency operations. This will ensure that in the event of an accident, investigators will be provided with an accurate record of events during reviews of those incidents.

If there is an accident or event that requires an investigation from the state or national office, the tape covering that time period will be included in the investigation file. Barring any such event, the tapes can be re-used immediately.

### **Radio Frequency Management**

Frequency assignments for normal operations or initial attack are made on a permanent basis and are requested through the state office or regional telecommunications manager to the Washington Office frequency manager.

Mutual-aid agreements for frequency sharing can be made at the local level. NIIMS form PMS 903-1/NFES 1519 "Radio Frequency Sharing Agreement" is available and should be used for this purpose.

A mutual-aid frequency sharing agreement is valid only in the specific locale it originates in. These agreements do not authorize the use of a shared frequency in any other area.

Do not use a frequency unless authorized to do so by communications personnel at the local, state, regional or national level.

On an incident, the communications unit leader (COML) will assign frequencies on the communications plan (ICS-205) for incident use. The ICS-205 is always a part of the incident action plan (IAP) and distributed at every operational period briefing.

Frequencies for type 1 and type 2 incidents are assigned through the National Incident Radio Support Cache (NIRSC) located at NIFC. Frequencies are a limited resource and have to be assigned to each incident to prevent interference. More complex situations that involve two or more incidents within the same geographic area require detailed coordination.

During severe situations and/or when there are significant numbers of large incidents, additional frequencies can be assigned. These are temporary assignments, and are requested by NIRSC-NIFC from the Washington Office telecommunications managers. This applies to frequencies for command, ground tactical, and aviation operations.

Additional frequencies are provided in the following circumstances:

- The NIRSC national frequencies are all committed within a specific geographic area.
- The requests continue for frequencies to support new incidents within a specific complex.
- The fire danger rating or conditions are extreme and the potential for additional new incidents is high.

### **Pre-assigned National Frequencies**

***National Air Guard*** - 168.625 MHz is a National Air Guard frequency for government aircraft assigned to incidents. It is used in emergency communications for aviation. A separate receiver is required to permit continuous monitoring. Transmitters on this frequency should be equipped with an encoder on 110.9 Hz.

Restrictions for use are:

- 1) Air-to-air emergency contact and coordination.
- 2) Ground-to-air emergency contact.
- 3) Initial call, recall, and re-direction of aircraft when no other contact frequency is available.

**National Flight Following** - 168.650 MHz is the National Interagency Air Net frequency. It is used for flight-following of official aircraft.

Restrictions for use are:

- 1) Flight-following, dispatch, and/or re-direction of aircraft.
- 2) Air-to-ground and ground-to-air administrative traffic.
- 3) Not authorized for ground-to-ground traffic.

**National Interagency Air Tactics** - 166.675 MHz, 167.950 MHz, 169.150 MHz, 169.200 MHz, 170.000 MHz are frequencies used to support air-to-air or ground-to-air communications on incidents west of the 95th meridian.

Restrictions for use are:

- 1) These frequencies shall be used for air-to-air and ground-to-air communications only.

**NOTE: Pacific Southwest Geographic Region exception: 166.675 MHz, 169.150 MHz, and 169.200 MHz will be used for air-to-air only; 170.000 MHz will be used for ground-to-air only.**

**Pacific Northwest Geographic Region exception: 170.000 MHz frequency cannot be used in Columbia River Gorge area (located between Oregon and Washington).**

- 2) Interagency geographic area coordination centers assign these frequencies. Assignment must be coordinated through the NIFC, communications duty officer (CDO).
- 3) Transmitter power output of radios installed in aircraft operating on these frequencies shall be limited to 10 watts.
- 4) Base stations and repeaters are prohibited on these frequencies.

**National Airtanker Initial Call** - 123.975 MHz is the National Interagency Frequency assigned to all airtanker bases for their exclusive use. No other use outside of airtanker bases is authorized.

**National Government All-Call Frequencies** - 163.100 MHz and 168.350 MHz are assigned for use anywhere, any time. They are good choices as travel frequencies for strike teams moving between assignments. They are also available for ground tactical frequencies during initial attack or incident operations.

**NOTE: When you are traveling between incidents, be sure to monitor for incident radio traffic in area before using these frequencies.**

### **Incident Radio Support**

All cache communications equipment should be returned to NIRSC at NIFC immediately after the incident is turned over to the jurisdictional agency. The only exception is the five Pacific Southwest Regional Starter Systems, which must be returned to their designated home unit.

Cache equipment includes kit accessory items. Shortages can occur at critical times during severe fire load causing kits to be sent without accessories. These accessory items are expensive and can contribute to higher incident cost.

No cache communication equipment should be moved from one incident to another without being first returned to NIFC for refurbishment. However, equipment unused and red sealed may be moved, if approval is given by the NIRSC-CDO at NIFC.

Battery orders should be realistic. Over ordering causes shortages to occur. All incident communications resource orders should be coordinated with and approved by the communication coordinator (COMC). This will help to keep even distribution of batteries as well as other communications resources. All battery orders can be consolidated by COMC to simplify and reduce the number of resource orders.

### **Radio Coverage**

There are only three ways to increase communication system coverage:

- Increase the transmitter power.
- Increase the height of the communication system antennas.
- Increase the number of transmitters and receivers within a system.

**NOTE:** All three can lead to severe system interference problems when done without proper planning or coordination.

### **Scarce or Limited Communications Resources**

The following options should be considered when there are radio resource shortages:

- The priority should always go to operations personnel or those personnel who are going to be in a hazardous environment and cannot be with someone carrying a radio. All other personnel should share radios, if possible, or team up with someone who is carrying a radio.
- When frequencies are in short supply, use human relay to get messages back to dispatch or ICP.
- On type 1 or type 2 incidents, move the communications center to a prominent location to gain access to line. From the communications center,



relays can be used to cover medical or operational emergencies from the operational area. For logistic or routine communications, some type of phone or satellite access or a vehicle to and from a contact point can be utilized.

- Request additional frequencies for short-term use.
- Re-use tactical (single frequencies) whenever possible. If care is taken and these frequencies are assigned in areas of low terrain, they can be re-assigned and used by other nearby incidents.

### **Equipment – Installation & Operation**

Communications equipment such as repeaters should be placed in locations that provide maximum coverage for operations. Additional repeaters should be ordered, if terrain conditions warrant.

If frequencies are limited, COML can place communications personnel in strategic locations to act as relays through an existing repeater.

Crews can improve their access into existing communications systems by placing personnel as relays. This is very effective in areas requiring short duration operations. Personnel used as relays must be trained and reliable.

All emergency communications equipment should be kept away from sources of possible interference. Existing radio communications sites are the best example of where **NOT** to place this equipment.

### **Military Communications on an Incident**

Military units assigned to an incident will already have radios. Each battalion is assigned 48 handheld radios. Sixteen of these radios are used by military crew liaisons. Intercrew communications within a military unit is provided by the military on its radios using its frequencies. All frequency assignments at the incident will be made by the COML in accordance with the ICS 205.

Some active military and guard units have 9600 channel VHF-FM radios compatible with civilian systems. Other units are adapting their aircraft for the civilian radios and can be easily outfitted prior to dispatch to an incident. A limited number of wiring harnesses are available at NIFC for those military aircraft that do not have civilian VHF-FM capability.

### **Cellular Communications**

Cellular telephones will not be used to communicate tactical operations, unless they are the **ONLY** means possible. Because phone communication is a closed-loop conversation between two parties, it does not allow others to share critical information. This lack of open communications can contribute to any number of dangerous, undesirable situations. Phones can be used for logistical

purposes, if warranted. A taped recording of these conversations is not critical. The decision to record phone conversations can be left up to local units.

Cellular telephone coverage is not available in all locations and is not always effective in areas with coverage. This is especially true in the western states.

Cellular enhancer systems can be used to expand coverage; they can have from 6 to 10 channels. This means only 6 to 10 phone calls can be made at any one time. The enhancers have to get these channels from an existing cell site which adds an additional system load. This results in a cascading effect which can reduce overall cell site performance.

Communication is from one cellular radio to another or to a telephone on the public switch network. There is no broadcast capability.

Access is not universal. Some cell providers do not allow a competitor's cellular customers use of their systems without a charge card number. (Most do not accept calling cards of any type.)

Cell systems get overloaded with calls during emergencies making access virtually impossible. Since all systems are interconnected in some form or another, problems that occur in one system can cause problems in other cell system(s), which can shut down all or part of an entire network.

### **Effective Radio Use**

Keep the antenna as high as possible and in a vertical position.

- Canting or tilting the radio 45 degrees lowers the effective transmitting power by half, so, a two-watt radio performs as a one-watt radio.
- Use of a chest harness reduces the effectiveness of the radio; since the radio is held at a 45 degree angle, the effective transmit power of the radio is reduced. There is also a decrease in transmitting and receiving capabilities due to shielding from your body.
- To increase communications in marginal coverage areas, raise the radio antenna in the following ways:
  - ♦ Remove the radio from chest harness and hold it in an upright position.
  - ♦ Use a speaker microphone and lift the radio above your head to the full extent of your arm.
  - ♦ Walk up the side of a hill. A 10 foot rise in elevation can make the difference.
- When using a mobile radio, repositioning the vehicle can improve communications in marginal coverage areas. This is especially true if you are parked under power lines or behind an obstacle such as a hill.

### General Communication System Facts

If the personnel using the system do not follow basic guidelines and use the system properly, the best system, even with full coverage, will not meet the requirements of the situation or incident.

Consider the following prior to adding additional radios to a system:

- An increase in radio traffic may overload the communication system.
- Sufficient radios must be provided to operations personnel. However, it is far easier to manage a communication system with fewer radios.
- In a crisis situation, once radio discipline breaks down and everyone tries to talk at the same time, regaining control is difficult.

As with radio numbers, the number of frequencies used within a given communication system has an effect on operational safety as well. Adding more frequencies will make the use of the system more complicated.

Even with multiple frequencies, everyone with a radio can end up on the same channel (frequency) when there is no radio discipline. Maintaining control of personnel using the radio system is easier when a limited number of frequencies or channel options is available.

Frequencies are a finite resource. There is a limited number available for initial attack and/or incident communications. At the same time, the nature of their physical properties is that radio frequencies are, in a sense, boundless. Care must be taken how and where they are assigned to minimize the possibility of interference.

The use of the scan feature on a radio may increase as the number of frequencies increase. To be effective with the scanning function, all users have to let everyone know what channel they are using. **During a crisis or critical situation, all radio users have to remember to end each message with the radio channel identifier being used. This is still required even with more sophisticated radios.**

The more channels that are scanned, the busier the radio receiver becomes. In the case of inexperienced radio users, the communication system will appear to be overloaded because the radio is never quiet.

Without scheduled periodic maintenance, communications equipment will deteriorate in reliability. Communications equipment must be properly maintained.



## 9 - Initial Attack



### Policy

Initial attack action must be based on approved fire management plans and reflect a commitment to firefighter and public safety. Without an approved plan, BLM units must take an aggressive suppression action on all wildland fire consistent with firefighter and public safety and resources to be protected.

An initial briefing will be provided to all incoming fire personnel.

### Objectives

The objective of initial attack is to suppress wildland fire in a timely, effective, and efficient response to wildland fires. The appropriate action will be defined and given as objectives to the initial attack incident commander. The first and most important objective will be to provide for firefighter and public safety. Managers are encouraged to provide the basics to fire cause determination commensurate with their position in the unit fire organization.

### Dispatch Operations

#### Organization/Points of Contact

The wildland fire dispatch system in the United States has three levels (tiers): the national, geographic area, and local levels. Logistical dispatch operations occur at all three levels, while initial attack dispatch operations occur primarily at the local level. Most wildland fire dispatch offices are interagency dispatch centers, funded and staffed by various federal and state fire management agencies. Some dispatch centers are funded and staffed by BLM alone, but are still interagency dispatch centers in that they process resource orders for other agencies' fires and mobilize resources provided by other agencies.

The standard for dispatch ordering channels is the three-tier dispatch system. Any geographic area or local dispatch center using a dispatch system outside the three-tier system must justify, in writing to the national office, why a non-standard system is being used.

#### Roles and Responsibilities

Three primary functions are performed by all dispatch centers: mobilization of fire suppression resources, demobilization of fire suppression resources, and

gathering and disseminating intelligence information regarding incidents within a defined geographic area. The specific methods and forms used to accomplish these functions are prescribed by agency managers at the national, geographic area, and local level. Many of the forms and procedures used have been standardized nationally. Many other forms and procedures, particularly those used locally, are non-standard and vary greatly from one area to another.

Dispatch centers are tasked with the safe and efficient mobilization of resources to wildland fires and non-fire incidents. Safe mobilization involves moving fire suppression resources to areas of need while ensuring that agency regulations and guidelines relating to safety are not violated. Efficient mobilization entails the moving resources to meet ordering time frames in the most cost-effective manner possible.

Dispatch centers are also tasked with the safe and efficient demobilization of resources. This involves either moving resources to their home units or moving resources from one incident to another (reassignment). Cost-effectiveness, timeliness, and safety considerations during demobilization.

All dispatch centers supply intelligence information to incidents within their pre-designated geographic area. The type of intelligence information supplied and the timing of reporting are specified in geographic area mobilization guides and the National Interagency Mobilization Guide.

Many dispatch centers, at all three levels of the system, are also tasked with mobilizing and demobilizing resources and providing intelligence information for Management-ignited fires within their geographic area.

Some local unit dispatch centers dispatch law enforcement in addition to wildland fire. Law enforcement dispatching is very site-specific and for some dispatch centers this generates a significant portion of their workload and requires staffing 24 hours a day year-round. Other dispatch centers have no law enforcement dispatching duties.

***Oversight Committees*** Every dispatch center must have an oversight committee composed of agency managers or representatives from each of the agencies served. Oversight committees provide direction to dispatch centers on agency policy and ensure adequate funding is provided to centers.

### **National Dispatch/Coordination System**

***National Interagency Coordination Center*** The National Interagency Coordination Center (NICC) is located in Boise, Idaho at the National Interagency Fire Center (NIFC). NICC is staffed by personnel from various federal agencies. NICC works with the Geographic Area Coordination Centers (GACC), as well as with other countries (e.g. Canada and Mexico). NICC coordinators also interact with the directors of fire and aviation programs, as well

as with the national MAC group. The principal mission of NICC is to provide cost-effective and timely coordination of national emergency response for wildfire suppression.

Through the Federal Response Plan, NICC responds to non-fire emergencies when tasked by an appropriate agency such as the Federal Emergency Management Agency (FEMA). NICC also collects, consolidates and disseminates intelligence information relating to fire and resource status. GACCs provide information to NICC which is consolidated into one national report. This report is sent to all GACCs, agency directors, and Washington Office personnel.

***Geographic Area Coordination Centers*** There are eleven GACCs in the United States, each of which serves a specific geographic portion of the country. Each GACC interacts with the local unit dispatch centers in its area, as well as with NICC and neighboring GACCs. Refer to the National Interagency Mobilization Guide for a complete directory of GACC locations, addresses, and personnel. The principal mission of each GACC is to provide cost-effective and timely coordination of emergency response for all incidents within the specified geographic area. GACCs are also responsible for determining the need, coordinating priorities, and facilitating the mobilization of resources from their areas to other geographic areas. Each GACC also prepares an intelligence report that consolidates fire and resource status information received from each of the local dispatch centers in its area. This report is sent to NICC and to the local dispatch centers, caches, and agency managers in the geographic area.

***Local Unit/Interagency Dispatch Centers*** Local dispatch centers are located all over the country as dictated by the needs of fire suppression agencies. The principal mission of a local dispatch center is to provide timely and cost-effective coordination of emergency response for all incidents within its specified geographic area. This most often entails the coordination of initial attack responses and the ordering of additional resources when fires escape initial attack. Local dispatch centers are also responsible for supplying intelligence information relating to fires and resource status to their GACC and to their agency managers and cooperators. Local dispatch centers may work for or with numerous agencies, but should only report to one GACC.

Some local dispatch centers are tasked with law enforcement and agency administrative workloads for non-fire BLM operations; if this is the case, a commensurate amount of funding and training should be provided by the benefitting activity to accompany the increased workload. If a non-wildfire workload is generated by another (non-BLM) agency operating in an interagency dispatch center, careful study must be undertaken to ensure that the agency generating the additional workload should offset this increased workload with additional funding or personnel sufficient to enable the BLM to continue fulfilling its fire suppression dispatch responsibilities.

## Initial Attack Dispatch

**Standard Operating Procedures** Field offices with dispatching responsibility, in conjunction with their cooperators, will ensure dispatch standard operating procedures are developed, reviewed, and updated annually prior to fire season. Local management input, review, and approval is critical.

There are many variations in dispatch standard operating procedures (SOPs) and the topics identified. These variations are due to many factors (i.e. activity level/complexities, interagency coordination, all-risk incidents, hazmat). The following topics shall be identified (at a minimum) in a dispatch center's SOP. The elements identified under the topics are **examples** of what should be covered. Additional guidance can be obtained by reviewing the district fire management reference guides.

- Organization: chain-of-command/table of organization for local agencies and cooperators, notification process/procedures, roles/responsibilities, etc.
- Initial Attack Response Plan (synonymous terminology—preplanned dispatch plans, run-cards, dispatch procedures): general information relating to the plan; procedures for identifying preparedness levels, notification to suppression forces and management of new fire starts or ongoing fire activity, modification/update procedures for the plan, procedures to follow when activity exceeds the initial attack plan, etc.
- Dispatch Operations:
  - General Information
  - Dispatcher Role and Responsibilities
  - Dispatcher Training and Qualifications
  - Procedures for Dispatch of Resources Off Unit
- Daily Duties:
  - Check-In/Out of Administrative/Fire Personnel
  - Intelligence
  - Weather/Briefings
  - Verify Initial Attack Response Levels
  - Status Suppression Resources
  - Preparedness Level establishment and verification
- Emergency Operations (Fire/Non-fire):
  - Notification of a Fire Report
  - Land Status Verification
  - IA Response Plan activation
  - Agency and Area Notification
  - Move-up and Cover Procedures
  - Call-back Procedures
  - Evacuation of Fire Area
  - Closing Public/Private Roads



Ordering Additional Personnel, Equipment, Aircraft needed  
Fire Weather Watch and Red Flag Warning Notification  
Temporary Flight Restrictions (TFR)  
Agency Duty Officers (Roles and Responsibilities)  
Aircraft Pre-Accident Plan  
Agency Employee Accident Plan  
Utility Company Notification (Power and Gas)  
Law Enforcement Dispatching Procedures/Requirements  
Hazmat/Spill Response Notification Procedures  
Local Government Requesting All-risk Assistance  
Search and Rescue

- Local Agreements: copies of all interagency or inter-district agreements governing the use of suppression resources, delineating areas of responsibility for fire suppression coverage.
- Communications: procedures for assigning/managing local radio frequencies, procedures for obtaining additional frequencies, a map of repeater sites/frequencies, instructions for using local dispatch radio consoles, phones, computers, fax machines, paging systems.
- Weather: processing of weather observations via WIIMS, daily posting and briefing procedures, broadcasts of fire weather forecasts to local fire suppression personnel, procedures for processing spot weather forecast requests and disseminating spot forecasts to the field, procedures for immediate notification to fire suppression personnel of fire weather watches and red flag warnings.
- Fire Danger: remain aware of the level of the locally significant fire danger indices and record those values daily, update and post monthly the seasonal trends of those values vs average.
- Information to be provided by dispatch:  
For Suppression/Support Personnel: resource availability/shortages, radio frequencies to be used, burning conditions/fuel types, weather forecast updates, local fire activity, agency policies (limited/full suppression), etc.  
  
For Management: fire activity, incident update, weather update, resource status.  
  
**Time frames and frequencies/locations for daily briefings must be clearly specified in the local dispatch SOP.** A method should also be identified for documenting briefings (time given, content of briefing, and person(s) conducting and receiving briefing).
- Preparedness levels: general information relating to the local preparedness plan; procedures for identifying level, notification to management,

dispatching roles and responsibilities at each preparedness level, etc. Specific triggers should be incorporated into preparedness plans that cause the preparedness level to move up or down. These triggers could be related to number/size of fires, amount and type of resources available/committed, regional/national fire situation, condition of local fuels, observed fire behavior, human-caused risk or predicted lightning activity level, etc. Specific actions should also be tied to each preparedness level, such as repositioning of suppression resources (crews, engines, smokejumpers, air tankers, etc.), activation of local MAC groups, contacts with other agencies, or hiring of CWN aircraft, emergency equipment rental agreement (EERA) equipment or AD crews.

- Dispatch Center Staffing Plan: call-out procedures for additional personnel in emergency situations, designation of duty officer for dispatch center, shift limitations, day off/R&R policy, EFF hiring, etc.
- Administrative Items (funding, travel, time sheets, fire reports, etc.)
- Accident/Incident: criteria/definitions, agency notification and documentation requirements, procedures for mobilization of critical incident stress debriefing teams, etc.
- Expanded Dispatch Plan: indicators for considering establishment of expanded dispatch, recommended organization and points of contact, overhead positions to order, location/facilities, equipment/supplies, support needs, procurement or buying unit team considerations, service and supply plan, etc.
- Medical Plan: activation/evacuation information, medical facility locations and phone numbers, air and ground transport (Medivac) capability, burn center information, etc.
- Media Plan: general procedures, notification requirements to agency external affairs personnel, routing for media calls.
- Aviation: ordering/scheduling requirements and procedures, special use airspace, special use mission requirements, incident/accident reporting and documentation procedures, flight management/tracking procedures.

## Sizeup

At the earliest opportunity the initial attack incident commander should forward, at a minimum, the following information to the agency dispatch, and continue to keep the dispatcher informed of any significant changes and progress on the fire.

- Fire Name
- Location
- Terrain (slope, aspect, elevation)
- Position of fire on the slope
- Size of fire
- Fuel Type
- Anticipated control problems
- Spread potential
- Values threatened
- Weather conditions
- Wind speed and direction
- Fire behavior
- Resources on the fire
- Resources needed, if any
- Estimated containment
- Estimated control
- Cause (known, suspected)

### **Cause Determination Checklist**

- 1 Take essential investigation materials with you to incident.
- 2 Make factual notes of all your actions and findings including:
  - ♦ Time fire was reported.
  - ♦ Name and ID of reporting party.
  - ♦ En route observations – people and vehicles.
  - ♦ Name and ID of persons or vehicles in vicinity of fire origin.
  - ♦ Take the weather and report it.
- 3 Locate and protect fire origin.
- 4 Search fire origin area for physical evidence of fire cause.
- 5 Protect evidence. **Do not remove** unless necessary to prevent destruction.
- 6 Make sketches of origin area using accurate measurements of relative locations of all evidence.
- 7 Take photographs from all angles and include long and medium distance, and closeup views of fire origin area and important evidence.
- 8 Turn over all notes, information, and physical evidence to the responsible law enforcement representative, or make your notes part of the official fire record.

## Briefing

### Briefing Guidelines (Required for all Incoming fire personnel)

Wildland fire personnel (all types including engine crews, hand crews, etc.) are likely to be unfamiliar with fuel and weather conditions, terrain, etc. Fire personnel not provided with information regarding the incident, may be less effective, and safety may be compromised. Therefore, BLM policy is to brief all fire personnel who arrive at an incident.

**Procedure** Many crews arrive at the unit by vehicle, or by transport aircraft and are transported to the incident. Transporting crews to the incident provides an excellent opportunity for briefing prior to fireline deployment. Exceptions include aerially delivered firefighters, and occasionally engine crews and miscellaneous overhead, who may deploy directly to the incident. The following checklist will be used to brief **all** incoming crews. If aerially delivered firefighters cannot be briefed prior to departure from base, the receiving unit dispatch office should provide a briefing to the supervisor by radio. In all cases, aerially delivered firefighters will be briefed prior to starting work. Engine crews can also be briefed by radio if driving to the ordering unit for the briefing would cause needless delay. Documentation of briefings should be noted in an appropriate log.

**Expanded Briefings** The attached briefing checklist contains the **minimum** required briefing items. Units are encouraged to expand the minimum briefing, as appropriate, to ensure that safety, effectiveness, and efficiency are adequately managed.

Briefing Checklist		
1. Incident Status	Location	
Size	Jurisdiction	
Hazards		
2. Incident Site	Forest/Grassland/etc.	
General Health		
Terrain		
3. Fuel Conditions	Live Fuels	
1-hour	10-hour	1000-hour
Important Indices		



3. **Fuel Conditions** – Provide best estimates of live, 1-, 10- and 1,000-hour time-lag fuel moisture contents, and important NFDRS indices.
4. **Weather conditions** – Provide current (or most recent) weather, including wind speed and direction, air temperature, and relative humidity. Also provide the most recent forecast, and spot weather information if available. Emphasize FIRE WEATHER WATCHES and RED FLAG WARNINGS. Dispatch should also remind the incident commander to obtain and relay site weather conditions.
5. **Command and Control** – Provide the name and contact radio frequency of the incident commander (or appropriate general staff) for contact on arrival. Also describe the appropriate method of reporting (checking in), the general communications procedure, and key radio frequencies.
6. **Fire behavior** – Provide best estimates of rate of forward spread, direction of spread, and approximate flame lengths. Include important facts on recent fire behavior.
7. **Aviation** – Provide important information such as number and types of aircraft operating in the area, MOAs, airspace closures, etc.
8. **Other** – Add additional information which would improve effectiveness and safety.

The IC should provide a specific safety briefing to all crews arriving at the incident.

### Spot Weather Forecast

Spot weather forecasts should be requested for fires that have potential for extreme fire behavior or exceed initial attack or are located in areas for which red flag warnings have been issued.

The basic elements of a spot weather forecast are:

- |                                  |                                      |
|----------------------------------|--------------------------------------|
| ▪ Name of fire or other project  | ▪ Weather conditions                 |
| ▪ Control agency                 | place                                |
| ▪ Request time and date          | elevation                            |
| ▪ Location by ¼ section          | observation time                     |
| ▪ Drainage name                  | wind direction                       |
| ▪ Exposure                       | wind velocity (eye level or 20 feet) |
| ▪ Size                           | dry bulb                             |
| ▪ Elevation (top and bottom)     | wet bulb                             |
| ▪ Fuel type                      | remarks                              |
| ▪ Fire character (ground, crown) |                                      |

## Strategy and Tactics

Determining the appropriate initial attack strategy is based on firefighter and public safety, and management objectives.

Remember to “**Match your strategy and tactics to the present and predicted fire behavior and weather conditions.**”

<b>Fire Suppression Interpretations from Flame Length</b>	
<b>Flame Length</b>	<b>Interpretations</b>
<b>Less than 4 feet</b>	Fires can generally be attacked at the head or flanks by firefighters using hand tools. Handline should hold fire.
<b>4 to 8 feet</b>	Fires are too intense for direct attack on the head with hand tools. Handline cannot be relied on to hold the fire. Bulldozers, engines, and retardant drops can be effective.
<b>8 to 11 feet</b>	Fires may present serious control problems: torching, crowning, and spotting. Control efforts at the head will probably be ineffective.
<b>over 11 feet</b>	Crowning, spotting, and major fire runs are probable. Control efforts at the head of the fire are ineffective.

## Strategy

**Direct Attack** This strategy is conducted in light fuels, directly on the flaming edge of the fire. The type of fuel and the flame length will dictate your strategy. If the flame length is greater than 2 to 3 feet, the fire is burning too intense for direct attack. Direct attack must start with an anchor point.

### Advantages and Disadvantages of Direct Attack

#### Advantages

There is minimal area burned. No additional area is intentionally burned.

Safest place to work. Firefighters can usually escape into the burn area.

Full advantage is taken of burn out areas.

May reduce the possibility of the fire moving into the crowns of the trees or brush.

Eliminates the uncertain elements of burning out or backfiring.

#### Disadvantages

Firefighters can be hampered by heat, smoke, and flames.

Control lines can be very long and irregular, because the line follows edge of fire.

Firefighters may accidentally spread burning material across line.

Doesn't take advantage of natural or existing barriers.

Usually more mopup and patrol.



**Parallel Attack** This strategy constructs fireline 6 to 50 feet from the fire's edge. The line is burned out immediately after construction.

<b>Advantages and Disadvantages of the Parallel Attack Method</b>	
<b>Advantages</b>	<b>Disadvantages</b>
Firefighters can drop back from the fire's edge, getting away from the smoke and heat.	Fire may cross fireline before it is burned out.
Can cut fireline across pockets and fingers.	Burned area is not readily available as a safety zone.
May be able to place line in lighter fuels.	Fails to take advantage of fireline that has burned out on its own.
Usually shorter and straighter line.	Will increase the area burned.

**Indirect Attack** This strategy is used when a direct attack is not possible or practical. The use of natural barriers, roads, fuel type changes, etc. allow you to establish control lines and burn out. Very effective strategy when fire behavior is intense and or firefighting resources are scarce.

### Advantages and Disadvantages of Indirect Attack Method

Advantages	Disadvantages
Can locate line along favorable topography.	More acreage will be burned.
Takes advantage of natural or existing barriers.	May be dangerous to firefighters, because they are some distance from the fire and can't observe it.
Firefighters work out of smoke and heat.	Fire may cross line before it is fired.
More time to construct line.	Burning out may leave unburned islands.
Allows line to be constructed in lighter fuels.	Brings into play the dangers of burning out or backfiring.
May be less danger of slopovers.	Fails to take advantage of line that has already burned out.

**Hotspotting** Hotspotting is the stopping of the spread of the flaming front. The purpose of this dangerous tactic (no anchor point and working at the head of the fire) is to slow the rapid spread of the fire, until firelines can be constructed. Often used in the protection of life and property. This strategy requires lookouts, escape routes, communications, and support from air tactical resources (retardant, water drops).

**Cold Trailing** Cold trailing means the firefighters are working along a partially dead line. They are inspecting the black line for hotspots, constructing line where needed, and mopping up hotspots. Cold trailing is used to reduce unnecessary disturbance to the environment.

**Mopup** To extinguish burning material that may cause a fire to spread beyond the control lines.

<b>Rules of Mopping Up a Fire</b>	
<b>Rule</b>	<b>What?</b>
Start work on each portion of line as soon as possible.	Start with the most dangerous line first. Work from the fire line toward the center of the fire. Small fires are totally extinguished. On larger fires, mop up a minimum of 100 feet, or to such a distance that nothing will blow, roll, or spot across the line.
Secure and extinguish burning materials.	Arrange burning fuels so they cannot roll across the line. Spread smoldering fuels and apply water so they will cool. Scatter fuels away from the line.
Deal with special hazards <b>INSIDE</b> the line.	Fall snags; extinguish logs and stumps. If you can't fall the snag, clear around the base, so that burning material will not fall into flammable fuels.
Deal with special hazards <b>OUTSIDE</b> the line.	Move slash back, away from the fireline. Fall snags and cover with dirt. If stumps are close to the line, cover them with dirt.
Reinforce the fireline.	Widen and clean the fireline. Reinforce any undercut line. Burn out or cold trail islands. Dig out roots that cross under the fireline. Feel for hot material along the fireline.
Check for spot fires.	Constantly check for spot fires, especially downwind from the fireline. Check heavier fuels (logs, snags, slash, etc.) for smoldering material.

The following Checklists are provided to increase safety and effectiveness in suppression operations:

***Downhill/Indirect Checklist***

- 1) The decision is made by a competent firefighter after thorough scouting.
- 2) Downhill line construction should not be attempted when fire is present directly below the proposed starting point.
- 3) The fireline should not lie adjacent to a chute.
- 4) Communication is established between the crew working downhill and crews working toward them from below, when neither crew can adequately observe the fire.
- 5) The crew will be able to rapidly reach a zone of safety from any point along the line if the fire unexpectedly crossed below them.
- 6) A downhill line should be securely anchored at the top. Avoid underslung line if practical.
- 7) Line firing should be done as the line progresses, beginning from the anchor point at the top. The burned out area provides a continuous safety zone for the crew and reduces the likelihood of fire crossing the line.
- 8) Be aware/avoid the Watch Out Situations.
- 9) Fully comply with the Standard Fire Orders.

***Principles of Retardant Use***

- 1) Determine tactics of direct or indirect based on fire sizeup and resource available.
- 2) Establish an anchor point and work from it.
- 3) Use the proper drop height.
- 4) Apply proper coverage levels.
- 5) Drop downhill and down-sun when feasible.
- 6) Drop into the wind for best accuracy.
- 7) Maintain honest evaluation and effective communication between the ground and air.

- 8) Use direct attack only when ground support is available or extinguishment is feasible.
- 9) Plan drops so that they can be extended or intersected effectively.
- 10) Monitor retardant effectiveness and adjust its use accordingly.

### ***Directing Drops***

- 1) **Give general location** on incident.
- 2) **Finalize location** with:
  - a) Clock direction – Straight in front of the aircraft is 12 o'clock, out the right door is 3 o'clock, the tail is 6 o'clock, and the left door is 9 o'clock. When giving direction, remember that helicopters and air attack generally orbit in a right-hand pattern and air tankers in a left-hand pattern.
  - b) Position on slope – Lower third, upper third, midslope, top of ridge, etc.
  - c) Aspect – Direction slope is facing.
  - d) Describe prominent landmarks – Don't say "I have a red hard hat. I'm wearing a yellow shirt. I'm waving. I'm by a big rock. I'm by the big tree." Visualize what the pilot sees from the air and describe target.
  - e) Use signal mirrors – Use smoke or fusee, if a mirror is unavailable. Stand in drop location (when safe) for ID and move away before drop.
- 3) **Describe target** from your location and explain mission. The pilot will decide drop technique and flight path.
- 4) **Assure pilot** all personnel are safe and know aircraft intentions before the drop.
- 5) **Give feedback** to pilot about drop accuracy. Be honest and constructive. Let the pilot know if drop is early, late, uphill, downhill, on target, too high, too low, etc. Report low drops immediately.

## **Evaluation**

### **Initial/Extended-Attack IC Evaluation Standards**

It has been documented that the greatest risk to the health and safety of firefighters is during the initial and extended attack phase of fire suppression. For this reason we have developed the following criteria for managers to use in the evaluation of initial and extended attack incident commanders. The criteria

are designed to emphasize those factors that are critical for the safe and efficient suppression of wildfires.

**Sample Evaluation:**

**1) Provide for the safety and welfare of assigned personnel.**

Recognize potential hazardous situations and determine if the fire can be fought safely.

Select safe and effective strategies and tactics by applying the LCES process.

Effectively brief firefighters of hazards, safety zones, escape routes, and current and expected weather and fire behavior.

Establish effective communications, and lookouts.

Ensure that special precautions are taken when hazards exist.

Ensure that adequate rest, food, water, and health services are provided to all personnel.

**2) Fire size-up**

Correctly estimate the fire behavior and potential.

Order the appropriate resources to safely and effectively manage the fire.

Communicate effectively with dispatch.

Select safe and effective strategies and tactics that meet management objectives.

**3) Fire suppression operation**

Safe and effective implementation of strategy and tactics through the use of the 10 Standard Fire Orders, 18 Watch Out Situations, LCES, and safety procedures.

Concise and effective briefing of firefighters, to include:

- incident objectives, strategy, and tactics
- hazards
- safety principles

Monitor weather and fire behavior, and make needed adjustments to strategy and tactics.

Provide for the safety and welfare of firefighters.

Communicate effectively with dispatch and supervisor. Keep dispatch informed of progress, problems, and needs.

Determine control, when the fire is out, and when it is safe to demobilize.

Early and effective notification of fire's escape.

Timely and effective input into the Wildland Fire Situation Analysis.

**4) Complete administrative responsibilities**

Complete time reports, accident forms, fire report, and other required reports.

Brief and submit complete documentation to supervisor.

Prepare and discuss performance evaluations with subordinates.

Actively participate in an analysis of:

- incident objectives
- strategy and tactics
- safety
- cost effectiveness
- lessons learned and suggestions for improvement





## 10 – Extended Attack



### Introduction

Extended attack is that transition phase of an incident when initial attack capabilities have been exceeded and a management team has not yet taken over.

The extended attack phase of fire suppression has historically been the most dangerous and costly to the fire program. Extended attack actions can overwhelm an incident commander if specific ICS organizational issues are not addressed at an early stage. The Extended Attack Complexity Analysis must be used as soon as it is evident that the incident will entail the use of numerous types and kinds of resources.

### Policy

All BLM units will utilize a decision-making process to determine the most appropriate management and management organization for a wildland fire that exceeds initial management capabilities.

A unified command structure should be a consideration in all multi-jurisdiction incidents.

### Complexity Analysis

The purpose of the complexity rating process is two-fold. It is to be used to identify elements or characteristics of an incident that pose special problems or concerns. Noting certain factors that are highly complex offers the opportunity to mitigate the situation by selecting a different strategy, tactic, or higher qualification of incident management personnel. The second purpose of the complexity analysis is to assist the manager in determining the level of management required to safely and effectively manage the incident.

### Extended Attack Complexity Analysis

#### Appraising the Situation

An incident complexity analysis (ICA) should be used as a guide for agency administrators. In developing this guide, certain assumptions are made:

- 1) As an incident becomes more complex, the need for an incident management organization increases.
- 2) To facilitate an efficient and effective organization, key incident management positions should be involved during the early stages of complexity analysis.
- 3) The guide is not a panacea for the decision process; local fire history and management requirements must be considered.

**Guidelines for Using the ICA**

One check in each of the five major elements would indicate a complexity level suggesting consideration of a Type 2 incident management team. If all elements are not involved, use the following ranges:

- 1-3 Current management should be able to handle. The local organization fills positions as needed. Continue to monitor objectives and accomplishments and consider a Type 3 organization.
- 4-6 Indicates complexity level suggesting a Type 3 Team.
- 7-10 Scrutinize overall complexity and safety concerns, consider past fire history and current and expected situation, and review WFSA. Consider ordering Type 2 team.

Prior to containment, the Wildland Fire Situation Analysis (WFSA) must be reviewed by a line officer and/or manager prior to each operational period to determine if it is still valid. If it is not valid, a new WFSA should be completed. All completed WSAs shall become a part of the final incident package. The Incident Complexity Analysis should also be reviewed with the WFSA to determine the level of management required.

**Extended Attack Incident Complexity Analysis**

<b>Safety</b>	Yes	No
Exposure of personnel to unusually hazardous conditions	_____	_____
Accidents/injuries have occurred	_____	_____
Multiple fixed-wing aircraft and helicopters involved or anticipated	_____	_____
Potential for public evacuations	_____	_____
Terrain adversely affects performance of tactical resources, limits safety zones.	_____	_____
Performance of firefighting resources affected by cumulative fatigue	_____	_____
<b>External/Political Factors</b>		
Potential for numerous damage claims	_____	_____
More than one jurisdiction involved	_____	_____
Controversial fire policy	_____	_____
Sensitive public/media relationships	_____	_____

Smoke management problems \_\_\_\_\_  
 Lack of cohesive organizational structure \_\_\_\_\_

**Resources Issues**

Structures \_\_\_\_\_  
 Cultural values \_\_\_\_\_  
 Recreational developments \_\_\_\_\_  
 Urban interface \_\_\_\_\_  
 Critical municipal watershed \_\_\_\_\_  
 T & E species \_\_\_\_\_

**Fire Behavior**

Current or predicted fire behavior dictates indirect control strategy \_\_\_\_\_  
 Fuels extremely dry and susceptible to rapid and explosive spread \_\_\_\_\_  
 Extreme fire behavior/blow-up potential exhibited \_\_\_\_\_  
 Current or predicted winds above 20 MPH \_\_\_\_\_  
 Fuel moisture of eight percent or below (10-hour fuels) \_\_\_\_\_  
 Severe fire weather predicted for next two operational periods \_\_\_\_\_

**Personnel/Equipment**

100 or more personnel assigned to incident \_\_\_\_\_  
 Variety of special support personnel or equipment \_\_\_\_\_  
 Resources unfamiliar with local conditions and accepted tactics \_\_\_\_\_  
 Heavy commitment of local resources to logistical support \_\_\_\_\_  
 Existing forces worked two operational periods without success \_\_\_\_\_  
 Communication ineffective with tactical resources or dispatch \_\_\_\_\_

**Complexity Rating**

- 1-3 Current management should be able to handle. Consider a Type 3 organization.
- 4-6 Indicates complexity level suggesting a Type 3 Team.
- 7-10 Scrutinize overall complexity and safety concerns, consider past fire history and current and expected situation, and review WFSA. Consider ordering Type 2 team.

**Remarks:**

Prepared By: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Reviewed By: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

Reviewed By: \_\_\_\_\_ Date \_\_\_\_\_ Time \_\_\_\_\_

## WFSA Guide

Wildland Fire Situation Analysis (WFSA) is a decision making process in which the agency administrator or representative describes the situation, evaluates the expected effects, establishes objectives and constraints for the management of the incident, and documents that decision. The format and level of detail required depends on the specific incident and its complexity. The key is to document the decision made. The required elements to be addressed in the WFSA are:

- Current Situation
- Evaluation Criteria
- Alternatives
- Analysis of Effects
- Record of Decision
- Review/Evaluation/Update
- Probability of Success
- Consequence of Failure

### Current Situation

This portion of the analysis provides basic information describing the fire situation at the time the analysis was conducted. It is important to clearly describe the situation that occurred at the time the decision was made. Elements to be addressed are:

- Fire name and number.
- Date of analysis. This is the date on which the current analysis was made. Enter the month, day, and year.
- Time. Enter the time of day the analysis was completed. Enter the 24-hour clock time.
- Location. Use local terminology for point of origin. Include a legal description and latitude and longitude.
- Fire weather and behavior
  - ♦ Current. Briefly discuss the fire weather in terms of temperature, wind and daily patterns. Describe the fire in non-technical terms, such as creeping, spotting crowning, etc. Discuss the flame lengths, rates of spread, size, etc.
  - ♦ Predicted. Describe the predicted weather patterns, and fire behavior predictions based on weather, fuels, topography, and the potential size.
- Resource availability. Briefly discuss the availability of suppression resources to control the fire and fire activity at the local, and geographic level.
- Management objectives and constraints. The management objectives and constraints should be summarized to assist in the decision process.
- Social or external considerations. Discuss any issues that would contribute to making good suppression decisions.

## Evaluation Criteria

Document the criteria used to evaluate suppression alternatives. The criteria should reflect the following:

- Safety (firefighter/public).
- Land and resource management objectives.
- Environmental considerations.
- Social, political, economic considerations.
- Resources availability. Local, geographic, and national fire activities and reinforcement capabilities.

## Alternatives

Develop a sufficient number of alternatives to represent a reasonable range for the situation. Each alternative must be practical and contain the level of detail required to compare the alternatives and make a decision based on pre-identified evaluation criteria.

**Strategy** Briefly state the alternative strategies for management of the incident. Use geographic names, locations, etc. Roughly designate each strategy on a map.

**Management Forces Required** Make general estimates with enough detail to help in estimation of costs, determine if resources are available, etc.

**Estimate Date of Control** Estimates for each alternative should be made based on predicted weather and behavior factors, barriers, fuels etc., and the effects of suppression efforts.

**Estimated Size at Containment** Estimates for acreage burned under each alternative should be recorded and displayed on a map.

**Estimated Cost** Estimate total cost of suppression alternative. Include suppression costs, and rehabilitation. Estimated cost should also consider the probability of success, i.e., the consequences of failure. The WFSA "Decision Tree Application" describes the cost of failure based on the probability of success. (see attached description). (The "average acre cost" from the planning process often works better than trying to estimate the cost for a specific situation.)

**Estimated Probability of Success** Based on estimates from 0-100 for each alternative.

## Analysis of Effects

Apply the above Evaluation Criteria to the alternatives. The results of the analysis will be the basis for selecting the appropriate alternative. The analysis of effects is based on the best estimates on the unit, resource and fire management. The situation will determine the level of detail required. You may display the effects in

dollars, or as positive or negatives, as demonstrated on the example forms. The important thing is to document your decision. Ensure that estimates of potential fire consequences are consistent with resource objectives, values, fire effects, and policy.

### **Record of Decision**

Agency administrator selects an alternative that best implements the objectives and constraints for the management of the area. Agency administrator selects the level of management required to successfully implement the selected alternative. (Incident Management Team Type 1, 2, or 3). Briefly provide your rationale for decisions. The WFSA shall become a permanent part of the final fire record.

### **Monitoring/Evaluation/Update**

The WFSA must be reviewed prior to each operational period to determine if the alternative is still valid. The responsible Agency Administrator must sign the WFSA to document the review.

## WILDLAND FIRE SITUATION ANALYSIS (WFSA)

Wildland Fire Situation Analysis (WFSA) is a decision making process in which the agency administrator or representative described the situation, compares multiple strategic wildland fire management alternatives, evaluates the expected effects of the alternatives, establishes objectives and constraints for the management of the fire, selects the preferred alternative, and documents the decision. The format and level of detail required depends on the specific incident and its complexity. The key is to document the decision made.

### WFSA INITIATION

FIRE NAME	
JURISDICTION(S)	
DATE AND TIME INITIATED	

### WFSA COMPLETION/FINAL REVIEW

The selected alternative achieved desired objectives on (date/time):

The selected alternative did not achieve the desired objectives and a new WFSA was prepared on (date/time):

Agency administrator or representative signature:


## WFSA Instructions

### Section I. WFSA Information Page

*The agency administrator completes this page.*

- I.A. Jurisdiction(s): Assign the agency or agencies that have or could have fire protection responsibility, e.g., USFWS, Forest Service, BLM, etc.
- I.B. Geographic Area: Assign the recognized "Geographic Coordination Area" in which the fire is located, e.g., Northwest, Northern Rockies, etc.
- I.C. Unit: Designate the local administrative unit, e.g., Hart Mountain Refuge Area, Flathead Indian Reservation, etc.
- I.D. WFSA#: Identify the number assigned to the most recent WFSA for this fire.
- I.E. Fire Name
- I.F. Incident Number: Identify the agency number assigned to the fire, e.g., BOD 296, BNF 001.
- I.G. Accounting Code: Insert the local unit's accounting code.
- I.H. Date/Time Prepared
- I.I. Attachments: Check here to designate attachments used in the completion of the WFSA. "Other" could include data or models used in the development of the WFSA. Briefly describe the "other" items used.



<b>I. Wildland Fire Situation Analysis</b>	
A. Jurisdiction(S):	B. Geographic Area:
C. Unit:	D. WFSA #:
E. Fire Name:	F. Incident #:
G. Accounting Code:	
H. Date/Time Prepared:	
I. Attachments: <ul style="list-style-type: none"> <li><input type="checkbox"/> Complexity Matrix/Analysis</li> <li><input type="checkbox"/> Risk Assessment</li> <li><input type="checkbox"/> Probability of Success</li> <li><input type="checkbox"/> Consequences of Failure</li> <li><input type="checkbox"/> Maps</li> <li><input type="checkbox"/> Decision Tree</li> <li><input type="checkbox"/> Fire Behavior Projections</li> <li><input type="checkbox"/> Calculations of Resource Requirements</li> <li><input type="checkbox"/> Other (Specify)</li> </ul>	

## Section II. Objectives and Constraints

*The agency administrator completes this page.*

- II.A. Objectives: Specify criteria that should be considered in the development of alternatives.

Safety objectives for firefighters, aviation, and public must receive highest priority. Suppression objectives must relate to resource management objectives in the unit resource management plan.

Economic objectives could include closure of all or portions of an area, thus impacting the public, or impacts to transportation, communication, and resource values.

Environmental objectives could include management objectives for airshed, water quality, wildlife, etc.

Social objectives could include any attitudes toward fire or smoke that might affect decisions on the fire, safety, etc.

Other objectives might include legal or administrative constraints which would have to be considered in the analysis of the fire situation, such as the need to keep the fire off other agency lands, etc.

- II.B. Constraints: List constraints on suppression action. These could include constraints to designated wilderness, wilderness study areas, environmentally or culturally sensitive areas, irreparable damage to resources or smoke management/air quality concerns. Economic constraints such as public and agency cost could be considered here.

**II. Objectives and Constraints**

## A. Objectives

## 1. Safety:

*Public**Firefighter*

## 2. Economic:

## 3. Environmental:

## 4. Social:

## 5. Other:

## B. Constraints

### Section III. Alternatives

*This page to be completed by fire manager/commander*

- III.A. Wildland Fire Management Strategy: Briefly describe the general wildland fire strategies for each alternative. Alternatives must meet resource management plan objectives.
- III.B. Narrative: Briefly describe each alternative with geographic names, locations, etc., that would be used when implementing a wildland fire strategy. For example, "contain within the Starvation Meadows watershed by the first burning period."
- III.C. Resources Needed: Resources listed must be reasonable to accomplish the tasks described in Section III.B. It is critical to also look at the availability of these resources.
- III.D. Estimated Final Size: Estimated final size for each alternative at time of containment.
- III.E. Estimated Contain/Control Date: Estimates for each alternative shall be made based on predicted weather, fire behavior, resource availability and the effects of wildland fire management efforts.
- III.F. Cost: Estimate all fire costs for each alternative. Consider mopup, rehabilitation and other costs as necessary.
- III.G. Risk Assessment–Probability of success/consequences of failure: Describe probability as a percent and associated consequences for success and failure. Develop this information from models, practical experience or other acceptable means. Consequences described will include fire size, days to contain, days to control, costs and other information such as park closures and effect on critical habitat. Include fire behavior and long-term fire weather forecasts to derive this information.
- III.H. Complexity: Use the Wildland Fire Complexity Analysis
- III.I. Maps: A map for each alternative must be prepared.

<b>III. Alternatives</b>			
	A	B	C
A. Wildland Fire Strategy:			
B. Narrative:			
C. Resources Needed: Handcrews Engines Dozers Airtankers Helicopters			
D. Estimated Final Fire Size:			
E. Estimated Contain/Control Date:			
F. Costs:			
G. Risk Assessment: Probability of Success Consequences of Failure			
H. Complexity:			
I. Attach Maps for Each Alternative:			

## Section IV. Evaluation of Alternatives

*This page is completed by the agency administrator(s), FMO, and/or incident commander.*

- IV.A. Evaluation Process: Conduct an analysis for each element of each objective and each alternative. Objective shall match those identified in section II.A. Use the best estimates available and quantify whenever possible. Provide ratings for each alternative and corresponding objective element. Fire effects may be negative, cause no change, or may be positive. Examples are: 1) a system which employs a "-" for negative effect, a "0" for no change, and a "+" for positive effect; 2) a system which uses a numeric factor for importance of the consideration (soils, watershed, political, etc.) and assigns values (such as -1 to +1, -100 to +100, etc.) to each consideration, then arrives at a weighted average. If you have the ability to estimate dollar amounts for resource and cultural values this data is preferred. Use those methods which are most useful to managers and most appropriate for the situation and agency. To be able to evaluate positive fire effects, the area must be included in the resource management plan and be consistent with prescriptions and objectives of the fire management plan.

Sum of Economic Values: Calculate for each element the net effect of the rating system used for each alternative. This could include the balance of: pluses (+) and minuses (-), numerical rating (-3 and +3), or natural and cultural values in dollar amounts. (Again resource benefits may be used as part of the analysis process when the wildland fire is within a prescription consistent with approved fire management plans and in support of the unit's resource management plan.)

IV. Evaluation of Alternatives			
Evaluation Process	A	B	C
Safety Firefighter Aviation Public			
Sum of Safety Values			
Economic Forage Improvements Recreation Timber Water Wilderness Wildlife Other (Specify)			
Sum of Economic Values			
Environmental Air Visual Fuels T & E Species Other (Specify)			
Sum of Environmental Values			
Social Employment Public Concern Cultural Other (Specify)			
Sum of Social Values			
Other			

## Section V. Analysis Summary

*This page is completed by the agency administrator(s), FMO, and/or incident commander.*

- V.A. Compliance with Objectives: Prepare narratives that summarize each alternative's effectiveness in meeting each objective. Alternatives that do not comply with objectives are not acceptable. Narratives could be based on effectiveness and efficiency. For example: "most effective and least efficient," "least effective and most efficient," or "effective and efficient." Or answers could be based on a two-tier rating system such as "complies with objective" and "fully complies with or exceeds objective." Use a system that best fits the manager's needs.
- V.B. Pertinent Data: Data for this section has already been presented, and is duplicated here to help the agency administrator(s) confirm their selection of an alternative. Final fire size is displayed on page 3, section III.D. Complexity is calculated in the attachments and displayed on page 3, section III.H. Costs are displayed on page 3, section III.F. Economic Values have been calculated and displayed on page 4. Probability of success/consequences of failure is calculated in the attachments and displayed on page 3, section III.G.
- V.C. External and Internal Influences: Assign information and data occurring at the time the WFSA is signed. Identify the preparedness index (1 through 5) for national and geographic levels. If available, indicate the incident priority assigned by the MAC group. Designate the resource availability status. This information is available at the GACC and is needed to select a viable alternative. Designate "yes" indicating an up-to-date weather forecast has been provided to and used by the agency administrator(s) to evaluate each alternative. Assign information to the "other" category as needed by the agency administrator(s).



<b>V. Analysis Summary</b>			
<b>Alternatives</b>	A	B	C
A. Compliance with Objectives Safety Economic Environmental Social Other			
B. Pertinent Data Final Fire Size Complexity Cost Resource Values Probability/Consequences of Success/Failure			
C. External/Internal Influences: National and Geographic Preparedness Level Incident Priority Resource Availability Weather Forecast (Long-Range) Fire Behavior Projections			

## Section VII. Decision

Identify the alternative selected. Must have clear and concise rationale for the decision, and a signature with date and time. Agency Administrator(s) signature is mandatory.

VI. Decision	
The selected alternative is:	
Rationale:	
Agency Administrator Signature	
Date/Time	

## Section VII. Daily Review

*This page is completed by agency administrator(s) or designate.*

The date, time and signature of reviewing officials are reported in each column for each day of the incident. The status of preparedness level, incident priority, resource availability, weather forecast, and WFSA validity is completed for each day reviewed. Ratings for the preparedness level, incident priority, resource availability, fire behavior, and weather forecast are addressed on page 5, section V.C. Assign a "yes" under "WFSA Valid" to continue use of the this WFSA. A "no" indicates this WFSA is no longer valid and another WFSA must be prepared or the original revised

VII. Daily Review										
Selected Alternative to Be Reviewed Daily to Determine If Still Valid until Containment/control										
<div style="background-color: #cccccc; height: 100%; width: 100%;"></div>			Preparedness Level	Incident Priority	Resource Availability	Weather Forecast	Fire Behavior Projections	WFSA Valid		
			Date	Time	By					
<b>If WFSA is no longer valid a new WFSA will be completed</b>										



# 11 – Incident Management



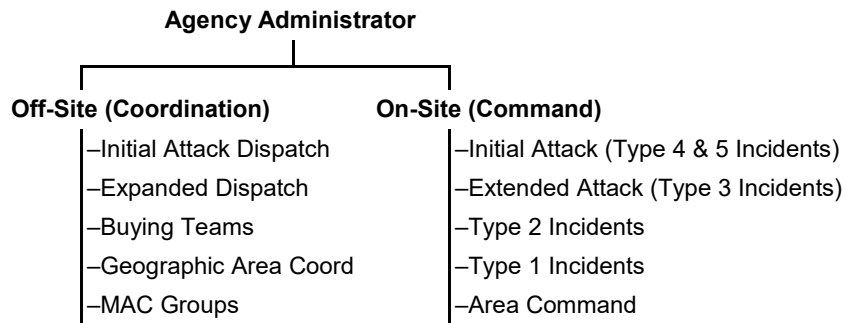
## Policy

It is the BLM policy to utilize the incident command system (ICS) to manage all incidents.

## Introduction

More than 90 percent of wildland fires are contained and controlled during initial attack. The ICS approach provides for management/organizational growth on incidents that evolve in complexity or increase in size. The transition and/or growth of an ICS management structure can occur over a period of several days or it may happen quickly within a few hours. Many safety problems, organizational issues, and cost-efficiency concerns emerge as the incident transitions into a larger operation. These transitions historically have been the most dangerous phase of incident management. Careful planning of transitions occurring during operational periods must be accomplished in order to mitigate all safety and coordination issues. **Managers should strive to transition incidents at the start of a new operational period with incident action planning complete.**

Incident management requires both on-site incident organizations **and** off-site coordination and support organizations. To effectively manage an incident, it is important to understand the roles and responsibilities of these organizations.



## On-Site Incident Organizations

### Type 5 Incidents

Characteristics of a type 5 Incident are:

- Resources required typically vary from two to six firefighters.
- The incident is generally contained within the first burning period and often within a few hours after arrival.
- Additional firefighting resources or logistical support are usually not required.

### Type 4 Incidents

Characteristics of a type 4 incident are:

- The incident has an incident commander—a single individual responsible to the agency administrator for all incident command level functions and incident activities. (All fires regardless of size have an incident commander.)
- Command and general staff positions are not activated.
- Resources vary from a single firefighter to several single resources or a single task force or strike team.
- The type 4 incident is limited to one operational period in the control phase. Mopup may extend into multiple periods.
- The type 4 incident does not require a written action plan, but will require a completed briefing checklist for incoming resources.
- Role of the agency administrator
  - ♦ Operational Plans which includes: Objectives, Strategy, and Priorities.

### Type 3 Incident (Extended Attack)

Characteristics of a type 3 incident are:

- Some of the command and general staff positions may be activated, usually at the division/group supervisor and unit leader level.
- Resources vary from several single resources to several task forces/strike teams.
- The incident may be divided into divisions but usually does not meet the division/group supervisor complexity for span-of-control.
- The incident may involve multiple operational periods prior to control, **which requires a written action plan.**
- Staging areas and a base may be used.

- Role of agency administrator:
  - ♦ Operation Plan which includes: Objectives, Strategy, and Priorities
  - ♦ Fire complexity analysis.
  - ♦ Wildland Fire Situation Analysis.

### **Type 2 Incident**

Characteristics of a type 2 incident are:

- Most or all of the command and general staff positions are filled.
- Incident base/camps are established.
- The incident extends into multiple operational periods.
- A written action plan is needed and prepared.
- Many of the functional units are needed and staffed.
- Operations personnel normally do not exceed 200 per operational period and total incident personnel do not exceed 500 (numbers are guidelines only).
- Divisions are usually established to geographically facilitate making work assignments and a qualified division/group supervisor is not required on divisions established for reasons other than span-of-control or other complexity factors.
- Role of agency administrator
  - ♦ Complexity analysis
  - ♦ Wildland Fire Situation Analysis
  - ♦ Agency administrator briefings
  - ♦ Written delegation of authority

### **Type 1 Incident**

Characteristics of a type 1 incident: meets all the criteria of a type 2 incident, plus the following:

- All command and general staff positions are activated.
- Operations personnel often exceed 500 per operational period and total personnel will usually exceed 1000 (numbers are guideline only).
- Divisions are established requiring division/group supervisor qualified personnel.
- May require the establishment of branches.
- The agency administrator will have briefings, WFSAs, and new delegation of authority along with possible transition from type 2 to type 1 teams.

- At this stage interface with the team often takes more of the agency administrator's time.
- Use of resource advisors at the incident base usually occurs.
- High impact on the local office occurs requiring additional staff for office administrative support functions.

### **Unified Command**

A representative from each of the involved jurisdictions shares command and at times other functions. Collectively they direct the management of the incident to accomplish common objectives. Unified command may be at the incident management team or area command level.

- The concept of unified command simply means that all agencies who have jurisdictional responsibility at the incident contribute to the process of:
  - ♦ Determining overall strategies.
  - ♦ Selection of alternatives.
  - ♦ Ensuring that joint planning for tactical activities will be accomplished.
  - ♦ Maximizing use of all assigned resources.
- Unified command is used when:
  - ♦ Incidents have no regard for jurisdictional boundaries.
  - ♦ Individual agency responsibilities and authority is normally legally confined to a single jurisdiction.
- The goals of the unified command are to:
  - ♦ Improve the information flow and interface between all agencies.
  - ♦ Develop a single collective approach to the incident regardless of its functional complexities.
  - ♦ Optimize the efforts of all agencies as they perform their respective missions.
  - ♦ Reduce or eliminate duplicate efforts or omissions.
  - ♦ Improve each agency's awareness of the plans and actions of all others.
  - ♦ Ensure that all agencies with responsibility for the incident have an understanding of their organization's goals, objectives, and restrictions.
  - ♦ Ensure that no agency's authority will be compromised.
  - ♦ Develop a set of objectives that will be developed for the entire incident.

### **Complex**

A complex is two or more individual incidents located nearby which are assigned to a single incident commander or unified command to facilitate management.

### **Area Command (AC)**

Area command is an expansion of the incident command function to manage a very large incident that has multiple incident management teams assigned or



numerous large incidents with individual teams assigned. However, an AC can be established at any time that incidents are close enough that oversight direction is required among incident management teams to ensure conflicts do not arise.

- The functions of AC are to coordinate the determination of incident:
  - ♦ Objectives.
  - ♦ Strategies.
  - ♦ Priorities for the use of critical resources allocated to the incidents assigned to the area command.
  - ♦ May be responsible for the coordination of demobilization.
  - ♦ The organization is normally small with personnel assigned to command, planning, and logistics. Depending on the complexity of the interface between the incidents, specialist in other areas such as aviation, safety, or information may also be assigned to area command.
  
- The AC is responsible for supervising, managing, and evaluating the incident management teams.

### **Overall Coordination and Management**

As numbers of wildland fires, complex incidents, and the involvement or impact on other agencies increases, it is necessary to expand day-to-day coordination and management organizations to ensure efficient and effective use of critical personnel and equipment. This is not an expansion of the ICS but rather an expansion of the coordination and management system that supports on-the-ground incident management organization(s).

## **Managing the Incident**

### **Agency Administrator's Responsibilities**

The agency administrator's responsibilities to the IMT:

- Assure that cause of fire is investigated immediately and that the ignition site is protected. Assignment for further investigation of ignition source to the IMT.
  
- Complete and approve delegation of authority.
  
- Conduct initial briefing following a well-prepared briefing format; so that incident objectives and concerns are understood by the IMT and you understand the IMT's expectations and concerns. **Define your role in the management of the incident.**
  
- Provide signed initial WFSA and establish daily re-certification procedure.
  
- Assign resource advisor(s) to IMT.

- Define public information responsibilities and delegations so that all parties understand their roles. Establish standards for IMT liaison with local communities. Assure that all appropriate public, media, and government contacts are made.
- Assure that employee briefings occur.
- Use the IMT information officer, but remain involved.
- Ensure that you are briefed on the fire situation in enough detail to meet your needs.
- Consider the realities of today's suppression costs. A comparison between suppression costs and "values at risk" should be made. "Values at risk" assesses the resource, and the political and economic considerations which may be affected by the incident now and in the foreseeable future.
- Consider requesting a comptroller to ensure cost-effective incident operations.
- Set clear and measurable standards for safety. Highlight known hazards of the area. You may require a safety analysis on the tactical alternatives.
- Assign clear responsibilities for additional initial attack action responses.
- Ensure that fire management staff is briefed regularly on incident status.
- Ensure that the IMT addresses fire training needs.
- Ensure that rehabilitation of all effects of fire suppression is addressed by the IMT.
- Ensure that all fiscal matters are resolved to your satisfaction prior to release of the IMT. You may choose to establish follow-up contact procedures with team for fiscal matters.
- Ensure a written re-delegation of authority has been completed prior to release of the IMT.
- Provide separate written evaluation to the IC and IMT performance.

### **Large Fire Complexity Analysis**

The following guide is presented to assist the agency administrator and staff in analyzing the complexity or predicted complexity of a fire situation. Because of the time required to assemble or move an IMT to a fire, this checklist should be completed when a fire escapes initial attack and be kept as part of the fire

records. This document is prepared concurrently with, and attached to, a new or revised Wildland Fire Situation Analysis. It must be emphasized that this analysis should, where possible, be based on predictions to allow adequate time for assembling and transporting the ordered resources.

### ***Use of the Guide***

- 1) Analyze each element and check the response yes or no.
- 2) If positive responses exceed, or are equal to, negative responses within any primary factor (A through G), the primary factor should be considered as a positive response.
- 3) If any three of the primary factors (A through G) are positive responses, this indicates the fire situation is or is predicted to be Type 1.
- 4) Factor H should be considered after all above steps. If more than two of these items are answered yes, and three or more of the other primary factors are positive responses, a type 1 team should be considered. If the composites of H are negative, and there are fewer than three positive responses in the primary factors (A-G), a type 2 team should be considered. If the answers to all questions in H are negative, it may be advisable to allow the existing overhead to continue action on the fire.

**Controversial fire policy** – Differing fire policies between suppression agencies when the fire involves multiple ownership is a good example.

**Pre-existing controversies** – These may or may not be fire management related. Any controversy drawing public attention to an area may present unusual issues to the IMT and local management.

**Have personnel overextended themselves mentally or physically?**—This is a critical item that requires judgment by the responsible agency. It is difficult to write guidelines for this judgment because of the wide differences among individuals. If the agency administrator feels the existing personnel cannot continue to function efficiently and take wise and aggressive action due to mental or physical reasons, assistance is mandatory.

**Fire Complexity Analysis**

Yes No

A. Fire Behavior *Observed or Predicted*

- 1. Burning index (from on-site measurement of weather conditions) predicted to be above the 90% level using the major fuel model in which the fire is burning. \_\_\_\_\_
- 2. Potential exists for extreme fire behavior (fuel moisture, winds, etc.) \_\_\_\_\_
- 3. Crowning, profuse or long-range spotting. \_\_\_\_\_
- 4. Weather forecast indicating no significant relief or worsening conditions. \_\_\_\_\_
- Total \_\_\_\_\_

B. Resources Committed

- 1. 200 or more personnel assigned. \_\_\_\_\_
- 2. Three or more divisions. \_\_\_\_\_
- 3. Wide variety of special support personnel. \_\_\_\_\_
- 4. Substantial air operation which is not properly staffed. \_\_\_\_\_
- 5. Majority of initial attack resources committed. \_\_\_\_\_
- Total \_\_\_\_\_

C. Resources Threatened

- 1. Urban interface. \_\_\_\_\_
- 2. Developments and facilities. \_\_\_\_\_
- 3. Restricted, threatened, or endangered species habitat. \_\_\_\_\_
- 4. Cultural sites. \_\_\_\_\_
- 5. Unique natural resources, special-designation areas, wilderness. \_\_\_\_\_
- 6. Other special resources. \_\_\_\_\_
- Total \_\_\_\_\_

D. Safety

- 1. Unusually hazardous fireline construction. \_\_\_\_\_
- 2. Serious accidents or fatalities. \_\_\_\_\_
- 3. Threat to safety of visitors from fire and related operations. \_\_\_\_\_
- 4. Restrictions and/or closures in effect or being considered. \_\_\_\_\_
- 5. No night operations in place for safety reasons. \_\_\_\_\_
- Total \_\_\_\_\_

E. Ownership			
1. Fire burning or threatening more than one jurisdiction.		_____	_____
2. Potential for claims (damages).		_____	_____
3. Different or conflicting management objectives.		_____	_____
4. Disputes over suppression responsibility.		_____	_____
5. Potential for unified command.		_____	_____
	Total	_____	_____
F. External Influences			
1. Controversial fire policy.		_____	_____
2. Pre-existing controversies/relationships.		_____	_____
3. Sensitive media relationships.		_____	_____
4. Smoke management problems.		_____	_____
5. Sensitive political interests.		_____	_____
6. Other external influences.		_____	_____
	Total	_____	_____
G. Change in Strategy			
1. Change in strategy to control from confine or contain		_____	_____
2. Large amounts of unburned fuel within planned perimeter.		_____	_____
3. WFSA invalid or requires updating.		_____	_____
	Total	_____	_____
H. Existing Overhead			
1. Worked two operational periods without achieving initial objectives.		_____	_____
2. Existing management organization ineffective.		_____	_____
3. Overhead overextended mentally and/or physically.		_____	_____
4. Incident action plans, briefings, etc. missing or poorly prepared.		_____	_____
	Total	_____	_____

## Team Selection

Selecting the appropriate management team is essential for successfully meeting your incident objectives. The incident complexity analysis will guide you in the selection of the appropriate team.

All teams are ordered through the established ordering channels from local dispatch offices, Geographic Area Coordination Centers, and National Interagency Coordination Center.

### Type 3 Incident Management Teams

Type 3 Incident Management Teams manage initial attack fires with a significant number of resources, escaped fire until a type 1 or 2 team arrives, or an extended attack fire until containment/control is achieved. The incident may be divided into segments, but normally would not meet the division supervisor complexity in regards to span-of-control.

**In using the type 3 team, a manager must be very cautious to avoid using them beyond the extended attack (type 3) level.** The command staff is normally comprised of the incident commander, a safety officer plus two general staff positions; however, a manager must assess the hazards and complexities to determine if other specialist positions are also needed.

**Recommended Minimum Positions** The following positions and qualifications should be considered when assembling type 3 IMTs. By using the factors in the extended attack complexity analysis a fire manager can determine the specific positions needed by addressing each complexity or issue related to the incident, e. g., if sensitive public/media relationships are evident, then an information officer should be part of the team.

Positions	Qualification Requirement
Incident Commander	Type 3 IC, (division supervisor recommended)
Operations	Strike Team Leader or Task Force Leader
Logistics	Facilities Unit Leader, Supply Unit Leader, or Ground Support Unit Leader
Plans	Resource Unit Leader or Situation Unit Leader
Finance	Time Unit Leader or Procurement Unit Leader
Safety	Safety Officer 3
Information	Information Officer 3

## **Type 2 Incident Management Teams**

These teams are ordered through the GACC. The team can be ordered in one of two configurations – short (nine members) or long (approximately 27-33 members). The national standard configuration of type 1 and type 2 teams is the same; however, GACCs may adjust the makeup of teams for use in their area.

### **Short Team:**

- Incident Commander (ICT2)
- Planning Section Chief (PSC2)
- Safety Officer (SOF2)
- Logistics Section Chief (LSC2)
- Finance Section Chief (FSC2)
- Operations Section Chief (OSC2) (2)
- Air Operations Branch Director (AOBD)

### **Additional Long Team Members:**

- Situation Unit Leader (SITL)
- Communication Unit Leader (COML)
- Supply Unit Leader (SPUL)
- Facilities Unit Leader (FACL)
- Ground Support Unit Leader (GSUL)
- Time Unit Leader (TIME)
- Procurement Unit Leader (PROC)
- Division Supervisor (DIVS) (4 each)
- Resource Unit Leader (RESL) (2 each)
- Fire Behavior Analyst (FBAN)
- Information Officer (IOF2)
- Comp/claims Unit Leader (COMP)
- Air Support Group Supervisor (ASGS)
- Air Tactical Group Supervisor (ATGS)

## **Type 1 Incident Management Teams**

There are 17 type 1 national interagency teams. These teams are mobilized according to national call-out procedures and rotation. Teams ordered through NICC will be in either long- or short-team configuration. Any variation from the standard configuration is only allowed at the discretion of the requesting unit.

### **Area – Number of Teams**

Northern Rockies – 2	Great Basin – 2	Alaska – 1
Rocky Mountains – 1	California – 5	Eastern Area – 1
Southwest – 2	Northwest – 3	Southern – 1

## **Area Command**

There are four national area command teams. Area command works directly for agency administrator(s) and is an extension of the incident command to manage a very large incident that has multiple incident management teams assigned. The

teams coordinate incident objectives, strategies, priorities for scarce resources, and coordination of demobilization.

Teams are comprised of the following six personnel—four specific and two trainees identified by the area commander.

- Area Commander (ACDR)
- Area Command Planning Chief (ACPC)
- Area Command Logistics Chief (ACLC)
- Area Command Aviation Coordinator (ACAC)
- Area Command Trainee (2)

## Transition to Teams

Once the decision has been made to mobilize an IMT a briefing must be given by the agency administrator, FMO, and local IC. The following guidelines assist transition of fire management responsibilities to incoming IMTs. Some information will be in writing and some may be oral. A delegation of authority is provided by the agency administrator to the incoming team at the briefing.

### Assumption of Responsibilities

- The assumption of an incident by a team must be as smooth and orderly as possible. An orderly transition saves money and assures that fire fighting continues in an orderly manner. The local team already in place remains in charge until incoming team members are briefed by their counterparts.
- The ordering area should specify the times of arrival and transition by the incoming team. These should be discussed with the incoming incident commander so transition is orderly.
- The ordering unit should accomplish the following actions prior to the arrival of the incoming team:
  - ♦ Determine incident command post/base location.
  - ♦ Order support equipment, supplies, and basic support organization for the incident.
  - ♦ Secure an ample supply of appropriate maps. This is a critical.
  - ♦ Determine the team's transportation needs and obtain needed vehicles.
  - ♦ Schedule agency administrator briefing time and location.
  - ♦ Obtain necessary information for the administrator briefing.
  - ♦ Obtain necessary communications equipment.

**There should be two briefings for the incoming team.** The first briefing should be by the agency administrator at a site away from the incident. The second



briefing should be by the current incident commander at the incident command post. The time needed for transition will depend on the complexity of the incident, the expertise of the existing team, and/or other problems. The WFSA and delegation of authority should be completed prior to the first briefing.

### **Agency Administrator Briefing**

This briefing should take place as soon as the incoming team is completely assembled. The agency administrator (or designated representative) should provide, at a minimum, the following information to the team:

- A written overview with the following information:
  - ♦ Name and number of incident.
  - ♦ Approximate size, location, jurisdictions and land status.
  - ♦ Name of the current incident commander.
  - ♦ General weather conditions at the incident site.
  - ♦ Behavior of fire.
  - ♦ Fuel types.
  - ♦ Current tactics.
  - ♦ Incident command post and base locations.
  - ♦ Other strategies, resources and tactics which might have an impact on the incident.
  
- Signed delegation of authority to the incoming incident commander.
  
- Local participation in the team organization by resource and agency representatives.
  
- Information about existing or anticipated unified command organization (if any). (May have been a consideration in decision to order a team.)
  
- Names and skills of technical specialists assigned to the incident.
  
- Unit fire policy.
  
- Concerns about resource values, improvements, wilderness and roadless areas, cultural resources, rare and endangered species, rehabilitation requirements, etc.
  
- Priorities for control.
  
- News media procedures.
  
- Political considerations.
  
- Agreements in effect.

- Other agencies already on the incident, agency representatives.
- Desired date and time when team transition will occur.
- Safety issues:
  - ♦ Accidents to date.
  - ♦ Status of accident reports.
  - ♦ Areas with existing or potential hazardous materials.
  - ♦ Investigation of ignition point and direction on needed follow-up.
  - ♦ Hazards (power lines, underground gas lines, etc.)
  - ♦ Name of local and state safety manager
- Operations and Planning (Considered in incident commander briefing):
  - ♦ Strategy
  - ♦ Tactics
  - ♦ Local unusual fire behavior and fire history in the vicinity of the incident.
  - ♦ Pre-attack plans available to the team.
  - ♦ Incident Status Summary (ICS-209) reporting requirements.
  - ♦ Copy of the current ICS-209.
  - ♦ Status of current team.
  - ♦ Status of local agency personnel.
  - ♦ Agency capabilities for team operation support.
  - ♦ Agency rest and rotation policies.
  - ♦ Agency rehabilitation policies.
  - ♦ Agency demobilization concerns.
  - ♦ Other large incidents
- Logistics:
  - ♦ Transportation routes.
  - ♦ Ordering system to be used.
  - ♦ Procurement unit in place or ordered.
  - ♦ Incident feeding procedures.
  - ♦ Available sleeping facilities.
  - ♦ Local medical facilities.
  - ♦ Nearest burn treatment center.
  - ♦ Contacts with local law enforcement agencies.
- Finance/Administration:
  - ♦ Fiscal limitations and constraints.
  - ♦ Any cost-sharing arrangements affecting the incident.
  - ♦ Contracting officer assigned.
  - ♦ Potential for claims.
  - ♦ Comptroller assigned.



7. My agency advisor will be Eric Johnson (wildlife biologist).
8. The NE flank of the fire borders private property and must be protected if threatened. John Dennison of the Big Pine Fire Department will be the local representative.
9. Manage the fire cost-effectively for the values at risk.
10. Provide training opportunities for the resource area personnel to strengthen our organizational capabilities.
11. Minimum disruption of residential access to private property, and visitor use consistent with public safety.

(signature)

\_\_\_\_\_  
Title of Agency Administrator

#### Amendment to Delegation of Authority

The Delegation of Authority dated May 20, 1995, issued to Incident Commander Bill Jones for the management of the Crystal River Fire, number E353 is hereby amended as follows. This will be effective 1800, May 22, 1995.

3. Key cultural features requiring priority protection are: Escalante Cabin, overlook board walks along the south rim, and the Ute Mountain study site.
12. Use of tracked vehicles authorized to protect Escalante Cabin.

(signature)

\_\_\_\_\_  
Title of Agency Administrator

### **Transfer of Command**

The following are guidelines for local and off-unit IMTs for transfer of fire suppression responsibilities. This guide is for the assumption and release of incoming management teams plus a checklist of information and data the receiving unit needs to provide. Information will be written and oral.

#### ***Taking Over of a Complex Fire by an Off-Unit Incident Management Team***

- 1) The assumption of a fire by an off-unit team must be as smooth and orderly as possible. The local team is in charge until officially released.
- 2) Ordering unit should specify expected time of arrival and expected time of takeover by the off-unit team.

- 3) Incoming IC should contact the fire's unit dispatch in advance and arrange for:
  - Expected support staff
  - Location of agency administrator
  - Transportation needs. Team IC should also contact ordering agency administrator or designated alternate immediately on team assignment.
- 4) The ordering unit should do the following prior to the arrival of the incoming team:
  - Determine ICP/base location
  - Order support equipment, supplies, and initial basic support organization for the fire.
  - Order or make ample supply of topography maps, base maps, etc.
  - Determine transportation needs of incoming team (from ordering unit to fire and on fire).
  - Determine agency administrator briefing time and location.
  - Obtain necessary information for the agency administrator briefing (see below).
  - Order communication cache and communication vehicle.
- 5) There should be two briefings for the incoming team. First briefing should be by the agency administrator at a site away from the fire. Second briefing should be by the local IC at the fire site. Transition period of takeover will depend on complexity, expertise of local team, and/or other issues.
- 6) Agency Administrator Briefing. Should be as held soon as possible after arrival of all members of the team. It is impossible to list everything a team needs to know. The following checklist and sample briefing form include those items that should be discussed and/or distributed to the team:

**Briefing Package Checklist**

- \_\_\_ Agency Administrator's Delegation of Authority to the IC
- \_\_\_ WFSA for \_\_\_\_\_ Incident
- \_\_\_ Agency Administrator's Briefing to the Incident Management Team
- \_\_\_ Unit Service and Supply Plan
- \_\_\_ Local Key Contact Phone List
- \_\_\_ ICS-209 \_\_\_/\_\_\_/\_\_\_
- \_\_\_ Fire Weather Forecast
- \_\_\_ Incident Area Map(s)
- \_\_\_ Incident Area Aerial Photo(s) (Planning Section packet only)
- \_\_\_ Resource, Overhead, and Equipment Order Forms completed to date (Logistics & Planning Section packets only)

Sample: **Agency Administrator's Briefing to the Incident Management Team****GENERAL**

Name of incident \_\_\_\_\_  
 Fire start: date \_\_\_\_\_ time \_\_\_\_\_  
 cause \_\_\_\_\_  
 Approximate size of fire \_\_\_\_\_  
 Location \_\_\_\_\_  
 Land status \_\_\_\_\_  
 Local fire policy \_\_\_\_\_  
 Resource values threatened \_\_\_\_\_  
 Private property or structures threatened \_\_\_\_\_  
 \_\_\_\_\_  
 Capability of Unit to support team (suppression and support resources) \_\_\_\_\_  
 \_\_\_\_\_

**COMMAND**

Written Delegation of Authority: \_\_\_\_\_  
 Agency \_\_\_\_\_  
 Agency Administrator's representative \_\_\_\_\_  
 Resource Advisor \_\_\_\_\_  
 Transition:  
 Name of current Incident Commander \_\_\_\_\_  
 Proposed time when team will assume command: date \_\_\_\_\_ time \_\_\_\_\_  
 Recommended local participation in fire team organization \_\_\_\_\_  
 \_\_\_\_\_  
 Other Command Organizations (Unified/Area/MAC) \_\_\_\_\_  
 \_\_\_\_\_  
 Legal considerations (investigations in process) \_\_\_\_\_  
 \_\_\_\_\_  
 Known political considerations \_\_\_\_\_  
 \_\_\_\_\_  
 Local social / economic considerations \_\_\_\_\_  
 \_\_\_\_\_

**Incident Information**

I/O Organization reports to: \_\_\_ Incident Commander  
 \_\_\_ Agency Administrator  
 Provide regular updates to: \_\_\_ Unit FMO  
 \_\_\_ Expanded Dispatch

**Safety**

Accidents/injuries to date \_\_\_\_\_  
 \_\_\_\_\_  
 Condition of local personnel \_\_\_\_\_  
 \_\_\_\_\_  
 Known hazards \_\_\_\_\_  
 \_\_\_\_\_

**PLANNING SECTION****General**

Access to Fax and Copier \_\_\_\_\_

Pre-attack plans \_\_\_ Yes \_\_\_ No

Other nearby incidents influencing strategy/tactics/resources \_\_\_\_\_

Training specialist assigned or ordered \_\_\_\_\_

Training considerations \_\_\_\_\_

Rehabilitation policies \_\_\_\_\_

**Situation Unit**

General weather conditions/forecast \_\_\_\_\_

Fire behavior \_\_\_\_\_

Local unusual fire behavior and fire history in area of fire \_\_\_\_\_

Fuel types: at fire \_\_\_\_\_

ahead of fire \_\_\_\_\_

ICS off-incident reporting requirements \_\_\_\_\_

**Resources Unit**

Refer to attached Resource Orders.

Personnel on fire (general) \_\_\_\_\_

Equipment on fire (general) \_\_\_\_\_

Unit demobilization procedures \_\_\_\_\_

**OPERATIONS SECTION**

Priorities for control, Wildland Fire Situation Analysis approved \_\_\_\_\_

Current tactics \_\_\_\_\_

**Ground Operations**

Accessibility by engines \_\_\_\_\_

Accessibility by ground support \_\_\_\_\_

**Air Operations Branch**

Airtankers assigned \_\_\_\_\_

Effectiveness of airtankers \_\_\_\_\_

Air Tactical Group Supervisor \_\_\_\_\_

Air base \_\_\_\_\_

Telephone \_\_\_\_\_

Helicopters assigned \_\_\_\_\_  
 Helibase location \_\_\_\_\_  
 Crash/rescue at helibase \_\_\_\_\_  
 FAR 91.137 assigned (describe) \_\_\_\_\_  
 \_\_\_\_\_  
 Flight hazard map available/known hazards in area \_\_\_\_\_  
 \_\_\_\_\_  
 Smoke/visibility conditions \_\_\_\_\_  
 Aviation Safety Team assigned or ordered \_\_\_\_\_

**LOGISTICS SECTION**

**Facilities Unit**

ICP/Base location \_\_\_\_\_  
 ICP/Base Pre-plans: \_\_\_ Yes \_\_\_ No  
 Catering services/meals provided \_\_\_\_\_  
 Shower facilities \_\_\_\_\_  
 Security considerations \_\_\_\_\_  
 Incident Recycling \_\_\_\_\_

**Supply Unit**

Expanded dispatch organization \_\_\_\_\_  
 Supply system to be used (local supply cache, ordering procedures) \_\_\_\_\_

**Communications Unit**

Communications system(s)  
 NFRC System on order \_\_\_ Yes \_\_\_ No Type \_\_\_\_\_  
 Local Network available \_\_\_ Yes \_\_\_ No \_\_\_ Temporary  
 Cell phone cache available \_\_\_ Yes \_\_\_ No  
 Landline access to ICP \_\_\_ Yes \_\_\_ No \_\_\_ Unknown  
 Local Telecom technical support \_\_\_\_\_

**Ground Support Unit**

Route to ICP/Base \_\_\_\_\_  
 \_\_\_\_\_  
 Route ICP to Fire \_\_\_\_\_  
 \_\_\_\_\_

**Medical Unit**

Nearest hospital \_\_\_\_\_  
 Nearest burn center \_\_\_\_\_  
 Nearest air ambulance \_\_\_\_\_

**FINANCE SECTION**

**Cost Unit**

Fiscal considerations \_\_\_\_\_  
 \_\_\_\_\_  
 Cost sharing (on multi-agency fires) \_\_\_\_\_  
 \_\_\_\_\_



Incident Business Advisor \_\_\_\_\_

**Procurement Unit**

Buying unit in place or ordered \_\_\_\_\_

Procurement unit leader assigned \_\_\_\_\_

Contracting officer assigned \_\_\_\_\_

Copy of local Service and Supply plan provided \_\_\_ Yes \_\_\_ No

Is all equipment inspected and under agreement? \_\_\_\_\_

**Compensations/Claims Unit**

Potential for claims \_\_\_\_\_

Status of claims/accident reports \_\_\_\_\_

**Time Unit**

Payroll procedure established for T&A transmittal \_\_\_\_\_

- 7) Local Incident Commander Briefing - Incoming team will be briefed by local IC on arrival at fire. The ICS 201 form should be the basis for this briefing. After briefing, functions will start phasing in to their areas of responsibility, but will not assume control until the predetermined time. Local teams may continue to work on fire in various functions depending on physical condition and agency administrator's direction.

Map of fire (best available) \_\_\_\_\_

Time of start \_\_\_\_\_

Spread - fire behavior \_\_\_\_\_

Fuels - at fire \_\_\_\_\_

Anchor points \_\_\_\_\_

Line held (on map) \_\_\_\_\_

Natural barriers \_\_\_\_\_

Weather forecast \_\_\_\_\_

ICP and Base/Campsites

Established \_\_\_\_\_

Possible \_\_\_\_\_

Airtanker effectiveness to date \_\_\_\_\_

Hazards (aircraft and people) \_\_\_\_\_

Access from base to line \_\_\_\_\_

Personnel and equipment on line \_\_\_\_\_

Personnel and equipment ordered (confirm information received at Agency Administrator briefing) \_\_\_\_\_

Aerial photos \_\_\_ Yes \_\_\_ No

Helibase/helispot locations (use map) \_\_\_\_\_

Communication system in use: Radio \_\_\_\_\_  
     Telephone \_\_\_\_\_ Mobile Phone \_\_\_\_\_  
 Water availability \_\_\_\_\_  
 Facility fire protection \_\_\_\_\_  
     Crash fire protection at helibase \_\_\_\_\_  
     Medivac arrangement \_\_\_\_\_  
 Review of existing plans for control in effect; copy of approved WFSA. \_\_\_\_\_  
 Smoke conditions \_\_\_\_\_  
 Local political issues \_\_\_\_\_  
 Any security problems? \_\_\_\_\_  
 Personnel on line (names and location - put on map). \_\_\_\_\_  
 Copy machine in Incident Command Post \_\_\_\_ Yes \_\_\_\_ No

### **Release of Incident Management Team**

Release of an IMT is basically the reverse of the above. Date and time must be approved by agency administrator or a representative. It must be as smooth as possible and local team members should be assigned and start working with team members at the predetermined time. Local management team should be off duty 24 hours prior to takeover.

Outgoing team should start phasing in local team as soon as demobilization begins.

Outgoing team should not be released from the Incident until fire management activity is at the level and workload a local team can reasonably assume.

- Fire must be controlled or contained.
- Most line crew members not needed for patrol and mopup, are released.
- Base camp shut down, reduced, or in the process.
- Planning section chief has prepared a rough copy of fire report and narrative.
- Finance section chief should have most known finance problems resolved. Contact made with local unit budget and financial personnel.
- Resource rehabilitation work completed or done to unit's satisfaction.
- Overhead ratings completed.

Finance and logistics section chiefs may have to stay longer or return to local unit to resolve problems.

IMT should have closed debriefing session prior to meeting with agency administrator.

Agency administrator and evaluation team should debrief team and prepare evaluation as soon as possible after release.

Items to cover:

- Local agency administrator should give team written performance evaluation.
- Were objectives met? (See approved WFSA)
- Safety
- Were costs considered in selection of strategy and tactics.
- Outstanding or poor performance of individuals or crews.

Should an IMT be assigned to a fire and portions of the above procedures cannot be followed due to emergency conditions or other problems, the assigned IC and staff will work with members of the local unit to obtain information to make the transition period effective and organized.

## **Incident Management Considerations**

Fire management requires the fire manager and firefighter to select suppression and mopup tactics commensurate with the fire's potential or existing behavior, yet leaves minimal environmental impact.

Cost of wildland fire suppression is rapidly increasing and of major concern to agency administrators. Development of strategy and tactical implementation should evaluate costs commensurate with the values at risk for improvements and private property as well as for natural resources being protected.

The following guidelines are for agency administrators, IMTs, and firefighters to consider. Some or all of the items may apply, depending on the situation.

Consider:

- Firefighter and public safety may not be compromised.
- Evaluate each and every suppression tactic during planning and strategy sessions to see that they meet agency administrator objectives and minimum impact guidelines.
- Include agency resource advisor and/or local representative in above session.
- Discuss minimum impact tactics with overhead during overhead briefings, to gain a full understanding.

- Ensure minimum impact tactics are implemented during line construction as well as other resource disturbing activities.

### **Implementation Guidelines**

Minimum impact suppression is an increased emphasis to suppress a wildland fire while maintaining a high standard of caring for the land. Actual fire conditions and your good judgement will dictate the actions you take. Consider what is necessary to safely manage the incident.

#### ***Safety***

- Apply LCES to all planned actions
- Constantly review and apply the Situations That Shout Watch Out and Standard Fire Orders.
- Be particularly cautious with:
  - ♦ Burning snags you allow to burn down.
  - ♦ Burning or partially burning live and dead trees.
  - ♦ Unburned fuel between you and the fire.
  - ♦ Identify hazard trees with either an observer, flagging, and/or glow-sticks.
- Be constantly aware of the surroundings, of expected fire behavior, and possible fire perimeter one or two days hence.

#### ***Fire Lining Phase***

- Give serious consideration to use of water or foam as a firelining tactic (fireline constructed with nozzle pressure, wetlining).
- In light fuels, consider:
  - ♦ Cold trail line.
  - ♦ Allow fire to burn to natural barrier.
  - ♦ Consider burn out and use of “gunny” sack or swatter.
  - ♦ Constantly re-check cold-trailed fireline.
  - ♦ If constructed fireline is necessary, use minimum width and depth to check fire spread.
- In medium/heavy fuels, consider:
  - ♦ Use of natural barriers and cold-trailing.
  - ♦ Cooling with dirt and water, and cold trailing.
  - ♦ If constructed fireline is necessary, use minimum width and depth to check fire spread.
  - ♦ Minimize bucking to establish fireline; preferably build line around logs.
- Aerial fuels—brush, trees, and snags:
  - ♦ Adjacent to fireline: limb only enough to prevent additional fire spread.

- ♦ Inside fireline: remove or limb only those fuels which if ignited would have potential to spread fire outside the fireline.
- ♦ Brush or small trees that are necessary to cut during fireline construction will be cut flush with the ground.
- Trees, burned trees, and snags:
  - ♦ MINIMIZE cutting of trees, burned trees, and snags.
  - ♦ Do not cut live trees, unless determined they will cause fire spread across the fireline or seriously endanger workers. **If** tree cutting occurs, cut stumps flush with the ground.
  - ♦ Scrape around tree bases near fireline if hot and likely to cause fire spread.
  - ♦ Identify hazard trees with either an observer, flagging and/or glow-sticks.
- When using indirect attack:
  - ♦ Do not fall snags on the intended unburned side of the constructed fireline, unless they are an obvious safety hazard to crews working in the vicinity.
  - ♦ On the intended burn-out side of the line, fall only those snags that would reach the fireline should they burn and fall over. Consider alternative means to falling, i.e. fireline explosives, bucket drops.

### ***Mopup Phase***

- Consider using “hot-spot” detection devices along perimeter (aerial or hand-held).
- Light fuels:
  - ♦ Cold-trail areas adjacent to unburned fuels.
  - ♦ Do minimal spading; restrict spading to hot areas near fireline only.
  - ♦ Use extensive cold-trailing to detect hot area.
- Medium and heavy fuels:
  - ♦ Cold-trail charred logs near fireline; do minimal scraping or tool scarring.
  - ♦ Minimize bucking of logs to check for hot spots or extinguish fire: preferably roll the logs.
  - ♦ Return logs to original position after checking or ground is cool.
  - ♦ Refrain from making boneyards: burned/partially burned fuels that were moved would be arranged in natural position as much as possible.
  - ♦ Consider allowing larger logs near the fireline to burn out instead of bucking into manageable lengths. Use lever, etc. to move large logs.
- Aerial fuels—brush, small trees and limbs: remove or limb only those fuels which, if ignited, have potential to spread fire outside the fireline.
- Burning trees and snags:

- ♦ First consideration is to allow a burning tree/snag to burn itself out or down (Ensure adequate safety measures are communicated).
- ♦ Identify hazard trees with either an observer, flagging, and/or glow-sticks.
- ♦ If burning tree/snag poses serious threat of spreading firebrands, extinguish fire with water or dirt. FELLING by chainsaw will be last means.
- ♦ Consider falling by blasting, if available.
- ♦ Be particularly cautious when working under snags that may pose a hazard.

### ***Camp Sites and Personal Conduct***

- Use existing campsites if available.
- If existing campsites are not available, select campsites that are unlikely to be observed by visitors/users.
- Select impact-resistant sites such as rocky or sandy soil, or openings within heavy timber. **Avoid** camping in meadows, along streams or lake shores.
- Change camp location, if ground vegetation in and around the camp shows signs of excessive use.
- Do minimal disturbance to land in preparing bedding and campfire sites. Do not clear vegetation or do trenching to create bedding sites.
- Toilet sites should be located a minimum of 200 feet from water sources. Holes should be dug 6-8 inches deep. (Use portable toilets whenever possible.)
- Select alternate travel routes between camp and fire if trail becomes excessive.
- Evaluate coyote camps versus fixed camp site in sensitive areas.

### ***Restoration of Fire Suppression Activities***

- Firelines:
  - ♦ After fire spread is secured, fill in deep and wide firelines, and cut trenches.
  - ♦ Waterbar, as necessary, to prevent erosion, or use wood material to act as sediment dams.
  - ♦ Ensure stumps from cut trees/large size brush are cut flush with ground.
  - ♦ Camouflage cut stumps, if possible.
  - ♦ Any trees or large size brush cut during fireline construction should be scattered to appear natural.
- Camps:

- ♦ Restore campsite to natural conditions as much as possible.
- ♦ Scatter fireplace rocks, charcoal from fire; cover fire ring with soil; blend area with natural cover.
- ♦ Pack out all garbage and unburnables.
  
- General:
  - ♦ Remove all signs of human activity (plastic flagging, pieces of aluminum foil, litter).
  - ♦ Restore helicopter landing sites.
  - ♦ Cover, fill in latrine sites.

### **Work/Rest Guidelines**

Management of crew, overhead, and support personnel rest to assure safe, productive fire suppression activity is the responsibility of all supervisory fire management personnel. Refer to safety chapter.

### **Incident Status Reporting**

The status of the incident must be reported at least once every 24 hours. The local agency administrator may require additional reporting times. Incident status is reported on the Incident Status Summary (ICS-209) and associated continuation sheet. Establish time requirements that will meet both the local, Geographic Area Coordinator Center (GACC) and National Interagency Fire Center requirements.

## **Rehabilitation**

Fire damages resulting from wildland fires take two forms: suppression damages and resource damages. Suppression action damages may be the result of suppression operations; resource damages are a result of the fire itself as related to the damage to the natural resource.

Rehabilitation involves short-term actions (usually 0-6 months) to stabilize a burned area and mitigate suppression damages. This includes replacing equipment, infrastructure, buildings, or facilities damaged or destroyed by a **suppression action**. Immediate rehabilitation to prevent further land degradation or resource loss, or to ensure safety, may be carried out as part of the incident. Post-incident rehabilitation actions must be specified in a rehabilitation plan approved by the director. Rehabilitation needs should be considered for each fire, and plans prepared for fires requiring complex rehabilitation efforts.

## Release of Teams

The release of an IMT is basically the reverse of the transition to the IMT from extended attack. The agency administrator must approve the date and time. The incoming local incident management team should have adequate rest prior to assuming control of the incident.

IMT should not be released from the incident until:

- The agreed objectives are met.
- Most operations personnel that are not needed for patrol and mopup have been demobilized.
- Base/camp have been demobilized, reduced, or are being demobilized.
- Planning section chief has prepared a rough copy of fire report and narrative.
- Finance section chief should have all known finance problems resolved. Contact made with budget and financial personnel.
- Suppression rehabilitation work is completed or to a point where the agency is satisfied with assuming remaining work.
- Overhead performance ratings are completed.
- Incident close out with agency administrator.

## Team Closeout and Review

The agency administrator must complete a written evaluation of the IMT. This evaluation should **not** be completed at the closeout review; instead, it should be completed after sufficient time has elapsed so that incident costs, claims, demobilization, and rehabilitation are essentially complete and can be thoroughly evaluated.

This delay in preparing the written evaluation will also provide the agency administrator with the opportunity to evaluate the IMT's effectiveness with cooperating agencies, the media, and neighbors. However, the written evaluation must be completed within six months after demobilization of the IMT.

The delegation of authority, wildland fire situation analysis, and agency administrator's direction shall serve as the primary standards against which the IMT is evaluated.

The agency administrator will provide a copy of the evaluation to the incident commander, and SFMO and retain a copy for the final fire package.

The SFMO will review all evaluations and will be responsible for providing a copy of evaluations documenting superior or deficient performance to the geographic area board managing the IMT. The SFMO will confer with the Office of Fire and Aviation regarding performance evaluation prior to submission to the geographic coordination center.



See reviews chapter for closeout format.

Factors to consider in a written evaluation of an IMT are:

- Compliance with delegation of authority.
- Compliance with wildland fire situation analysis.
- Compliance with agency administrator directions.
- Orderly transition; local unit to team/team to local unit.
- Human resource management.
- Personnel safety records.
- Financial performance compared to WFSA predictions.
- Accountability and control of all accountable property.
- Documentation of fire costs.
- Completeness of claims investigations/documentation.
- Media relations.
- Interaction with cooperative agencies/office staff/neighbors.
- Effectiveness of suppression damage rehabilitation.
- Orderly demobilization.
- Completeness of final fire package.

### Interagency Incident Team Evaluation

This form serves as documentation for the agency administrator on IMT performance. The evaluation looks at how the IMT managed the incident. The form provides an opportunity to evaluate with a simple yes or no or a short comment.

Team IC:		Type:	
Incident:		Fire Number:	
1	Did the Team accomplish the objectives described in the Wildland Fire Situation Analysis (WFSA), the Delegation of Authority, and the Agency Administrator Briefing (if available)?		
		Yes	No
2	Was the Team cost effective in their management of the Incident?		
		Yes	No
3	Was the Team sensitive to resource limits and environmental concerns?		
		Yes	No
4	Was the Team sensitive to political and social concerns?		
		Yes	No

5	Was the Team professional in the manner which they assumed management of the incident, managed the total incident, and returned it to the hosting agency?	Yes	No	
6	Did the Team anticipate and respond to changing conditions in a timely and effective manner?	Yes	No	
7	Did the Team place the proper emphasis on safety?	Yes	No	
8	Did the Team activate and manage the demobilization in a timely, cost-effective manner?	Yes	No	
9	Did the Team attempt to use local resources and trainees, and closest available forces to the extent practical?	Yes	No	
10	Was the IC an effective manager of the Team and its activities?	Yes	No	

11	Was the IC obviously in charge of the Team and incident? Was the IC performing a leadership role?			
		Yes	No	
12	Was the IC aggressive in assuming responsibility for the incident and initiating action?			
		Yes	No	
13	Did the IC express a sincere concern and empathy for the hosting unit and local conditions?			
		Yes	No	
14	Other comments:			
Line Officer/Agency Representative:				Date:
Incident Commander:				Date:

## Off-site Coordination & Support

### Initial Action Dispatch

This includes normal dispatching operations on initial actions utilizing existing available resources.

### Expanded Dispatch

As incidents develop and/or numbers of wildland fires increase, it is necessary to expand day-to-day coordination organizations. Coordinators are added to handle requests for personnel, equipment and supplies, aircraft, etc. This allows initial action dispatchers to concentrate on new starts.

- An operations center may be set up for expanded dispatch.
- The center coordinator facilitates accomplishment of goals and direction of the agency administrator and, when in place, the MAC Group. The individual filling of the position is key and, depending on the complexity of the situation, may be filled by the person normally managing the day-to-day operations of the center or an individual from a higher level of management. The center coordinator is responsible for:
  - ♦ Filling and supervising necessary positions, as needed, in accordance with coordination complexity.
  - ♦ Implementing decisions made by the MAC group.
- Facilities and equipment for its organization should be pre-identified, procured, and available for immediate setup. The following key items should be provided for:
  - ♦ Separate from but accessible to the initial attack organization.
  - ♦ Adequate office space (lighting, heating, cooling, security).
  - ♦ Communications, equipment (telephone, telecopier, computer hardware with adequate data storage space, priority use, and support personnel).
  - ♦ Area suitable for briefings (agency administrators, media).
  - ♦ Timetable/schedule should be implemented and adhered to (operational period changes, briefings, strategy meetings).

### Buying Teams

Assistant disbursing officer teams and administrative payment teams may be assigned to expanded dispatch or the unit administrative officer.

### Multi-agency Coordination Group (MAC)

A MAC group is activated by the agency administrator when requests exceed or may exceed the number of available resources. Normally, this will occur when a number of jurisdictions are involved; are heavily supporting an effort; and/or are significantly impacted by the commitment of local resources.

A MAC group can be activated to provide staff support to the land manager when only one agency has incident(s). The MAC group is made up of agency representatives who are fully authorized to commit agency resources and funds. They, as a group, prioritize incidents and allocate scarce resources based on resource requests and availability, policies and agreements, and situation status. In order to make knowledgeable decisions, the group is supported by situation and resource status coordinators who collect and assemble data through normal coordination channels. MAC group direction is carried out through expanded dispatch organizations.

- MAC groups may be activated at one or several levels (local, state/region, and national).
- A MAC group and supporting organization would normally be activated when the character and intensity of the emergency situation significantly impacts or involves other agencies. At this point, agency representatives are brought together and briefed so they can relieve the expanded dispatch organization of the responsibility for making key decisions regarding the sharing and use of critical resources.
- MAC group and support organization – Positions, units and support personnel are activated depending on the complexity of the involvement.
- MAC organization relationships – A MAC organization represents the agencies from which it is composed. The flow of information is from MAC through the expanded or normal dispatch channels. The organization does not operate directly with the incident command or area command who have responsibility for the management of the on-the-ground incident organizations.
- MAC functions – Activation of MAC group improves interagency coordination at top management levels and provides for allocation and timely commitment of multi-agency emergency resources on any incident. Participation by multiple agencies in the MAC effort will improve:
  - ♦ Overall situation status information.
  - ♦ Incident priority determination.
  - ♦ Resource acquisition or allocation.
  - ♦ State, federal disaster coordination.
  - ♦ Political interfaces.
  - ♦ Overall coordinated information provided to the media and agencies involved.

The agency representatives should be fully authorized to represent their agency. Their functions are:

- ♦ Ensure that the collective situation and resource status is provided and current, by agency.
- ♦ Prioritize incidents.
- ♦ Determine specific resource requirements, by agency.

- ♦ Determine resources availability by agency (available for out-of-jurisdiction assignment) and the need for providing resources in a mobilization center.
  - ♦ Determine need and designate mobilization and demobilization centers.
  - ♦ Allocate scarce/limited resources to incidents based on priorities.
  - ♦ Anticipate future resource needs.
  - ♦ Review policies/agreements for resources allocations.
  - ♦ Review need for other agencies' involvement.
  - ♦ Provide necessary liaison with out-of-area facilities and agencies, as appropriate.
  - ♦ Critique and recommend improvements.
- MAC group coordinator – the MAC group coordinator facilitates organizing and accomplishing the mission, goals, and direction of the MAC group. The position provides expertise on the functions of a MAC organization and the proper relationships with dispatch centers and incidents.
    - ♦ Fill and supervise necessary unit and support positions, as needed, in accordance with coordination complexity.
    - ♦ Arrange for and manage facilities and equipment necessary to carry out the MAC group functions.
    - ♦ Facilitate the MAC group decision process by ensuring the development and display of information that will assist agency representatives in keeping abreast of the total situation. Provide the data necessary for astute priority setting and allocation of resources.
    - ♦ Implement decision made by MAC group.
  - MAC group agency representatives – The MAC group is made up of top management level personnel from those agencies who have jurisdictional responsibility and those who are heavily supporting the effort or may be significantly impacted by the lack of local resources.





# 12 – Wildland/Urban Firefighting



## Wildland Urban Interface

The wildland/urban interface is more than a geographic area or zone where structures meet or intermingle with wildland fuels. It is a set of conditions where flammable structures exist within the reach of ignition sources, primarily firebrands, from burning wildland and structural fuels. Often, as severe wildland fires meet structural developments, vegetation ceases to burn but catastrophic fire continues, sustained by structures igniting and perpetuating these events even a mile or more from wildland fuels. The potential exists in areas of wildland/urban interface conditions for extremely dangerous and complex fire conditions which pose a tremendous threat to public and firefighter safety.

## Structural & Vehicle Firefighting

### Policy

As partners with state and local firefighting organizations, federal wildland firefighting agencies manage wildland fires and hazardous fuels, educate the public about wildland fire and fire prevention, and provide partner agencies with technical assistance. Structural firefighting is not the BLM's responsibility, but that of local agencies. However, federal agencies may assist in structural suppression efforts during emergencies to save lives or to keep the fire from spreading onto public lands. In these situations, BLM personnel will be briefed on safety hazards associated with suppression around developments and transportation systems.

Fire protection agreements specify responsibilities of partners, including funding. For more information on BLM policy, refer to *BLM Manual 9200* and the *Federal Wildland Fire Management Final Report*, December 1995.

For additional fire service and homeowner information regarding wildland/urban fire refer to FIREWISE.ORG on the web.

### Clarification

- 1) BLM resources will not be planned for, nor dispatched as normal response for structure or vehicle fires, except in those cases where these fires pose significant threat to BLM-administered lands. In these situations, BLM resources should only be planned for wildland protection. BLM employees may only take direct action on structure or vehicle fires when adequate local

firefighting forces are not yet present. Actions will be limited to the exterior of the structure or vehicle unless there is immediate threat to human life. Employees must not knowingly be exposed to noxious gases or chemicals or other situations that require the use of self-contained breathing apparatus. BLM units will withdraw from structural fire suppression and protect adjoining wildland resources when local fire agency units arrive in sufficient force.

- 2) The number, type, and location of bureau firefighting resources will not be based on nor justified by structure or vehicle firefighting needs.
- 3) No bureau employee should respond to a structure or vehicle fire prior to receiving specialized training in hazard awareness and unique safety considerations associated with structure and vehicle protection. In most cases, a local fire department with responsibility for structure and vehicle fire protection will provide this training.
- 4) BLM employees, in interagency dispatch centers, should not provide dispatch service for cooperating agencies having structure fire, vehicle fire, or emergency medical responsibility unless (1) a current interagency agreement is in effect, (2) the bureau dispatcher has been trained the same as the cooperating agency dispatchers, and (3) the bureau employee has been given a delegation of authority for those activities outside the normal scope of the bureau. In these instances, BLM employees will be acting as agents of that agency and will **only** communicate information contained in that agency's dispatch plan or as directed by an official from that agency.

### **Protection Agreements and Planning**

Managers must ensure that all wildland/urban interface areas are covered by fire protection agreements or renegotiate existing agreements to reflect federal policy and to ensure that state and local responsibilities are apportioned appropriately. Incorporate wildland/urban interface considerations into all agreements, operating plans, land and fire management plans.

### **Safety**

#### ***Wildland/Urban Watch Outs***

- Wooden construction and wood shake roofs
- Poor access and narrow one-way roads – Observe bridge limits when using heavy equipment
- Inadequate water supply
- Natural fuels 30 feet or closer to structure
- Extreme fire behavior
- Strong winds
- Evacuation of public (panic) and pets (horses, dogs)
- Structures located in chimneys, box canyons, narrow canyons, or on slopes of 30 percent or more in flashy or heavy brush fuel types

- Power lines and poles – Watch for both overhead and fallen lines
- Propane and above ground fuel tanks with nearby vegetation or wooden improvements
- Local citizens attempting suppression actions
- Airtanker retardant drops and helicopter bucket operations

## Sizeup

The primary considerations are firefighter safety, public safety, potential fire behavior, access, egress, nature of the threat, hazardous materials, and water supplies. The following checklists are designed for incidents that BLM normally does not respond to unless specifically trained. Distribute these checklists only to those who are trained and qualified to perform these tasks and assessments.

### **Structure Assessment**

#### ***Address/Property Name***

- Numerical street address, ranch name, etc.
- Residents on site?

#### ***Road Access***

- Paved, gravel, dirt
- Number of lanes, vegetation clearance, defensible space, safety zones
- Undercarriage problems, 4x4 only?
- Turnouts, turnarounds
- Bridges – adequate support structure?
- Creek Crossings – approach angle, crossing surface
- Terrain – road slope, position on slope, near chimneys, saddles, canyon bottom
- Grade – greater or less than 15 percent

#### ***Structure/Building***

- Single residence, multiple occupancy, barn, fuel storage, unknown storage.
- Exterior walls – stucco or other non-combustible, wood frame, wood shake, other combustible. Large unprotected windows facing heat source?
- Roof – asphalt or fiberglass shingle, tile, rock, metal or other low combustible material; wood shake or other easily combustible material?
- Eaves – covered and little overhang; exposed with large overhang exposure?
- Other – exposed wooden structural elements, overhangs slope, attached wood deck, firewood piles, wooden patio furniture, wooden fences attached to house.

***Clearances/Exposures/Defensible Space***

- 100' vegetation clearance, max. 18" high, 15 percent or less slope, good ground clearance, vegetation is low combustible type, or is clearance less than described?
- Predominant fuel bed in area surrounding structure is light, medium, heavy, continuous, non-continuous?
- Flammable trees adjacent to structure?
- Other combustibles adjacent to structure?
- High voltage lines or transformers near apparatus placement areas?
- Structure located on narrow ridge, knoll, narrow canyon, chimney, mid-slope; defensible space less than 200 feet?
- Propane and above ground fuel tanks with nearby vegetation

***Hazardous Materials***

- Pesticides, herbicides, DOT/NFPA/UN symbols, propane, oil, fuels, paints

***Available Water***

- Hydrant or standpipe, water storage tank with valve, swimming pool with access

***Evacuation Needs***

- Describe

***Estimated Resources for Protection***

- Number and type engines, number water tenders, number crews, number dozers?

**Structure Triage**

There are three categories of structures: those that are threatened; those that are not threatened; and those that are lost or are too dangerous to protect.

Factors that may make an attempt to save a structure hopeless or too dangerous are:

- Fire is making a sustained run and there is little or no clearance.
- Fire behavior is extreme; spot fires are numerous and out pacing control.
- Water supply will not last as long as the threat.
- Fire's intensity dictates you leave the area NOW.
- Roof is more than one-quarter involved.
- There is fire inside the structure or windows are broken.

- You cannot safely remain at the structure and your escape route could become unusable.

## Initial Action

The following checklists are designed to guide you in response to situations. The checklists provide factors to consider for a safe and effective response.

### Structure Protection Checklist

- Always stay mobile.
- Back equipment in for quick escape.
- Coil a short 1½" charged line with fog nozzle on your engine for safety and quick knock down.
- Don't make long hose lays.
- Know bridge limits, alternate access, and turnarounds for you and support vehicles.
- Keep at least 100 gallons of water reserve in your tank.
- Check roads before the fire hits.
- Check each home for defense. Use Structure Assessment Checklist.
- Determine if residents are home. Leave home lights on inside and out, day and night.
- Close garage door.
- Place owner's ladder at a corner of home on least fire threat side.
- Coil and charge garden hoses.
- Check and mark HazMat, i.e., LPG, pesticides, paint storage.
- Don't enter a burning structure unless you are trained, equipped, and authorized.
- If a home becomes well involved, **leave it**. Move on to one you can save.
- **Always wear your safety gear, all of it.**
- Firefighter safety and survival is the number one priority.

A course, Introduction to Wildland Firefighting for the Structural Company Officer, has been developed by the National Fire Academy and will be available July 1998. The course covers two primary areas. The first is what a company officer can expect when assigned to a major wildland fire incident, and the second is the basics of wildland firefighting. The course is designed to have a wildland fire instructor participate. It is highly recommended that bureau fire managers participate in the local instruction of this course whenever possible.

## Hazardous Materials

All individuals responding to wildland fire incidents should be familiar with the current publication of the Department of Transportation's *Emergency Response Guidebook* DOT P 5800.7 1996, its purpose and use.

It is required that all employees receive hazardous materials awareness training (BLM H-1112-2). This training is available either through agency HazMat coordinators or local fire departments.

### IC HazMat Checklist

- Approach Cautiously** Resist the urge to rush in; you cannot help others until you know what you are facing. Stay upwind and uphill.
- Identify the Hazards** Placards, container labels, shipping papers and knowledgeable persons on the scene are valuable information sources. Evaluate all of them and then consult the recommended guide page before you place yourself or others at risk.
- Secure the Scene** Without entering the immediate hazard area, do what you can to isolate the area and assure the safety of individuals and the environment. Move and keep individuals away from the scene and the perimeter. Allow room enough to move and remove your own equipment.
- Obtain Help** Advise dispatch to notify responsible agencies and call for assistance from trained experts through CHEMTREC and the National Response Center.
- Decide on Site Entry** Any efforts you make to rescue persons, protect property or the environment must be weighed against the possibility that you could become part of the problem.

***Above All*** Do not walk into or touch spilled material. Avoid inhalation of fumes, smoke and vapors, even if no hazardous materials are known to be involved. Do not assume that gasses or vapors are harmless because of lack of smell—odorless gasses or vapors may be harmful.

**1-800-424-9300** CHEMTREC (Chemical Transportation Emergency Center) – for immediate information about a chemical or to seek assistance from a manufacturer

**1-800-424-8802 National Response Center** – To report spills of oil and hazardous materials

### **HazMat Checklist**

#### **Assume role of IC until relieved by responsible agency**

- Assign safety officer
- Develop action plan for area security and evacuation. Advise dispatcher.
- Advise all units of changes in situation.
- Document all actions taken and contacts.
- Document employee exposure.

#### **Rules for Isolation Distances**

- Minor event (1 drum, 1 bag, etc.) = 150 feet
- Major event (1 drum or more, etc.) = 500 feet
- Residential and light commercial = 300 feet
- Open areas = 1000 feet
- BLEVE (Boiling Liquid Expanding Vapor Explosion) potential = 2500 feet (½ mile)
- Stage arriving units 2500 feet upwind.
- Position vehicles headed out.

#### **Think Safety**

- Safe approach, upwind/upgrade/upstream
- Identify, isolate and deny entry
- Notify agency dispatcher
- Request needed assistance via safe route

#### **Scene Management**

- Goal is to protect life, environment and property
- Attempt to identify substance using DOT Emergency Response Guide, occupancy/location, placards/labels, container shapes/colors, Material Safety Data Sheets (MSDS), shipping papers. **Use binoculars!**
- Assess situation – exact location, identity and quantity of material involved, exposures and hazards

#### **HazMat Response Acronyms** Reference: NFES 2148

**S**afety – Responder safety is #1 priority.

**I**solation & Deny Entry – Isolate material and don't let anyone enter hazard area.

**N**otifications – Local, state, and federal responders and regulators.

**C**ommand/Management – Implement command. IC must be identified/assigned.

**I**dentification & Assessment – ID material and hazards associated with it.

**A**ction Planning – State law requires written action plan. ICS 201 will work.

**P**rotective Equipment – Determine appropriate level for responders.

**C**ontainment & Control – Mitigate hazardous material involved only if you are trained, equipped, and authorized.

**P**rotective Actions – Secure area, evacuate or shelter in place.

**D**econtamination & Cleanup – Up to responsible party or local health department.

**D**isposal – Very expensive. Special permits required for hauling.

**D**ocumentation – Document everything!



# 13 – Aviation Operations

## Introduction

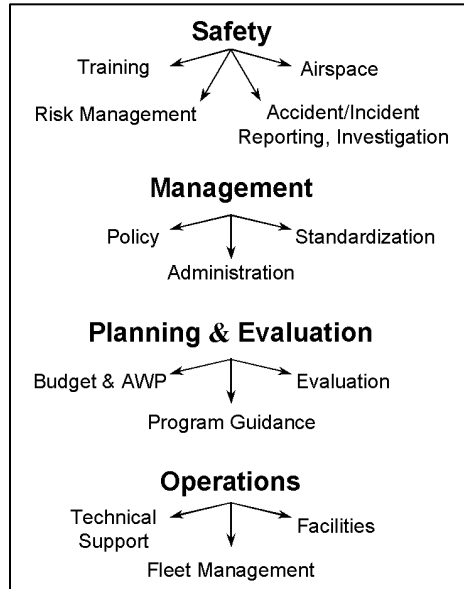
### Purpose and Scope

Aviation managers have leadership responsibility for resource missions that use aircraft. Standards and prerequisite qualifications ensure that aviation services are practical, low risk, benefit to the bureau and the public.

Aviation is used in most BLM programs. Every person in the aviation organization provides a service for the customer, whether the customer is the user of public resources or an operating function within the organization.

Clear direction and good management practices can reduce risks inherent to aviation missions. Aviation program success increases with planning, high standards training and commitment to the safety for each mission.

The four major emphasis areas of aviation management are safety, management, planning and evaluation, and the mission. Refer to the chart for an illustration of these components and their sub-components.



### Roles and Responsibilities

**Office of Aircraft Services** The Office of Aircraft Services (OAS) is responsible for departmental policy related to aircraft services and facilities but has no operational responsibility. OAS provides departmental level aviation safety and accident investigation, aircraft and pilot inspection, procurement of aircraft, and policy development. Refer to 112 DM 12 for a complete list of responsibilities.

**National Office Level** The BLM Office of Fire and Aviation develops bureau policy, procedures, and standards and maintains functional oversight and interagency coordination for all aviation activities. The primary goals are safety and cost-effectiveness. The national office promotes accident prevention efforts and supports bureau functions and missions, including fire suppression. Refer to *BLM Manual 9400* for further information on aviation policy and procedures.

**State Office Level** State aviation managers (SAMs) are located in all BLM state offices. SAMs implement aviation program objectives and directives to support the BLM mission and each state's goals. Several states have additional support staff, aircraft dispatchers, and/or pilots assigned to support aircraft operations and to provide technical expertise. A state aviation operations and management plan is required to outline goals of the state's aviation program and to identify state-specific policy and procedures.

**Important Note:** *BLM Manual 9400* specifies that a state cannot be more restrictive in policy and procedures (e.g., flight following) than the national policy unless such policy or procedure is approved by the Director, Office of Fire and Aviation. This was done to encourage bureau standard operations.

**Local Level** Field managers staff and manage their programs as necessary to conduct their aviation operations safely. While many field offices have aviation management as a collateral duty, during periods of intense fire activity, it is still absolutely critical and necessary that aviation oversight be maintained. Assistance from the state office, cooperators, resource ordering in assistance, aviation safety assistance team (ASATs)—are all resources that should be considered when other duties interfere with aviation management.

### **Aviation Information Resources**

There is a significant amount of aviation reference material available to BLM aviation managers and users. Agency and interagency manuals, handbooks, and guides exist that provide both broad policy guidance and specific procedural requirements. Note: In all cases departmental policy (DMs, OPMs and bureau policy) will take precedence.

In addition, safety alerts, instruction memoranda, information bulletins, incident reports, and other guidance or information is issued frequently as the need arises.

State and district aviation managers must maintain an up-to-date reference library with all aviation policy and procedural references.

Tactical aircraft bases and other fire users of aviation resources (e.g., air tactical group supervisors) should maintain those applicable portions of the overall aviation reference library.

## Aviation Safety

### Risk Assessment and Risk Management

Risk must be managed based on acceptable limits. All aviation missions have some inherent risk. The key is risk management within acceptable BLM standards. Risk management is a five-step process:

- 1 Identify hazards;
- 2 Hazards analysis: determine (1) the effect on personnel and equipment should the hazard be encountered, and (2) the probability that the hazard will be encountered;
- 3 Risk decision: risk is weighed against the benefit of performing the mission;
- 4 Implementing controls: risk is mitigated by establishing and implementing controls. Control may be as substantial as writing a special-use plan or as simple as conducting a safety briefing;
- 5 Supervision: supervision by qualified personnel is critical to successful risk management.

Risk assessment is part of the risk management process, and can range from simple to complex. Assessing risk allows personnel to identify hazards, the degree of risk associated with each, and place hazards in perspective relative to the mission. This enables managers to determine whether or not to cancel a mission. A decision made to conduct the mission, requires those controls to ensure success. Risk assessment must be conducted by those individuals qualified by training and experience.

Methods for aviation hazard assessment and implementation control can be found in the interagency guides relating to airspace coordination, air tanker base operations, helicopter operations, lead plan operations, and air tactical operations.

Refer to Chapter 3 of the *Interagency Helicopter Operations Guide* (IHOG), for a detailed discussion of the risk management process.

### Aviation Safety Assistance

During high fire activity locally or statewide. It is advisable to request the following national aviation safety assistance for helicopter or fixed-wing operations:

- Aviation Safety Manager
- Operations Technician
- Pilot Inspector
- Maintenance Inspector (optional)
- Avionics Inspector (optional)

### **Aviation Watch Out Situations**

As part of the risk management, especially during high activity fire, each aviation manager and employee should ask the following questions:

- Is flight necessary?
- Who is in charge?
- Are all hazards identified and have you made them known?
- Should you stop the operation or flight due to change in conditions?
  - Communications?
  - Confusion?
  - Personnel?
  - Weather?
  - Turbulence?
  - Conflicting priorities?
- Is there a better way to do it?
- Are you driven by the task and a sense of urgency?
- Can you justify your actions?
- Are there other aircraft in the area?
- Does the pilot accept the mission?
- Are there any rules being broken?
- Are communications getting tense?
- Are you deviating from the assigned operation or flight?

### **Mission Planning/Hazard Mitigation**

Pre-flight planning will reduce inherent risks to any aviation mission to acceptable levels. During flight planning and scheduling, at a minimum the following must be addressed:

- Completion/submission of the aircraft flight request/schedule
- Cost analysis
- Assessment and mitigation of hazards
- Selection of aircraft
- Scheduling of aircraft with vendors or agency pilots
- Pilot and aircraft approvals checked
- Pre-flight briefings

## **Aircraft and Pilot Carding**

The OAS is responsible for procurement, approval, and carding of pilots and aircraft used and paid for by BLM. With the exception of life-threatening situations or undercover law enforcement missions, personnel shall not fly with pilots or in aircraft that have not been approved (carded). Note that some state agency aircraft and pilots are approved by State and Private Forestry, USDA Forest Service. They may or may not carry a card; but they must have a letter of approval.

Use of military or National Guard aircraft and pilots – The *Military Use Handbook* (NFES #2175) should be used when planning or conducting aviation operations involving military aircraft. All ordering of military assets is done through the NICC; all ordering of National Guard assets is done through the governor of the state that owns the Guard resources.

Dispatchers or aviation managers are responsible for verifying pilot and aircraft carding during mission planning and aircraft procurement. Prior to any flight, it is the responsibility of the helicopter manager, flight manager, or employee to check for pilot and aircraft cards or letters of approval.

Field personnel have no authority to suspend or revoke a pilot's card. Only the agency contracting officer or other agency-designated official may suspend or revoke a card. However, other individuals (e.g., helicopter managers, helibase managers) can suspend operations that are being conducted improperly.

Any employee can refuse to participate on a flight that the employee deems unsafe.

## **Aviation Safety Briefing**

Every BLM passenger will receive a briefing prior to each flight. The briefing may be conducted by the pilot, flight manager, helicopter manager, fixed wing base manager, or an individual with training and experience to conduct an adequate briefing. The briefing should include (but is not limited to):

- Personal Protective Equipment (PPE): for special-use airplane missions and all helicopter flights, all passengers, pilot(s) and air crew members must wear the following: flight helmet or hard hat (including chin strap); flame resistant clothing; ear and eye protection; boots; other survival equipment as applicable. For point-to-point flights, no PPE is required.
- Approach and departure paths: the desired route for personnel to and away from the aircraft (e.g. always approach and depart from the down slope side of helicopters parked on uneven terrain); approach and depart helicopters in a crouch; stay in pilot's view; stay clear of landing areas/taxiways while aircraft are approaching or departing; never go near the tail of helicopters, do not approach airplanes from the front.

- Tools and equipment: the proper securing of tools and equipment while awaiting aircraft transport; proper methods for carrying tools to and from the aircraft; assignments for individuals loading tools/equipment.
- Seating in aircraft: seat belt fastened at all times; no movement between seats unless authorized by pilot; unbuckle only when directed by the pilot, air crew member, or helitack personnel; follow the instructions of the pilot at all times; know the location of first aid kit, survival kit, fire extinguisher, emergency locator transmitter (ELT), fuel/battery shutoff switch, radio operation, oxygen (if available).
- Security of equipment: secure any loose items; all baggage secured in aircraft or in cargo compartment; never throw any object from or around any aircraft, never reach up or dart after any object that has become unsecured.
- Smoking: no smoking in or around aircraft and fuel sources.
- Emergency Exits: know the location and use.

### **Low-level Flight Exemptions**

Note: Throughout this discussion of low-level flight exemptions and retardant dropping in congested areas; the terms air tanker coordinator, leadplane pilot, air tactical pilot, air tactical officer and aerial supervision module (ASM) all mean the same thing.

BLM operates air tankers and can drop retardant in congested areas under the authority in FAR Part 137.5. The following are requirements for dropping retardants in congested areas:

- Aircraft engaged in fire retardant or water drops may operate without regard to these restrictions, provided the following procedures are implemented.

Deviation is limited to fire operations for cargo dropping, and leadplane operations associated with the aerial application of water or fire suppressants or retardants conducted by or for DOI, subject to the following provisions:

- 1) A thorough air survey for obstacles, and check for air conditions in each operating area, shall be made prior to low-flight operations.
- 2) All flights below 500 feet altitude shall be confined to immediate areas being treated or where operational requirements make such low flights essential.
- 3) All aircraft are to follow planned flight course.

- 4) Low-flight operations are to be under VFR conditions and during daylight hours — ½ hour before sunrise to ½ hour after sunset. (See local sunrise/sunset chart for actual times.)
- 5) Prior clearance is to be obtained from the appropriate air traffic controller before any flight to be made in controlled air space.
- 6) Pilot will avoid creating any hazard to passengers or to persons or property on the ground.
- 7) Dropping fire retardant in congested areas shall be avoided in normal situations. Where such operations are considered necessary, depending on special circumstances, they may be authorized subject to these special limitations:
  - a) Airtanker operations in congested areas may be conducted at the special request of the responsible agency (city, rural fire department, county, state, or federal fire suppression agency).
  - b) A qualified airtanker coordinator (lead plane pilot/air tactical pilot) will be ordered immediately on identification of the congested area and will directly supervise all airtanker drops.
  - c) The FAA office (air traffic control center, tower, or flight service station) responsible for airspace control in the vicinity of proposed airtanker operations will be notified prior to or as soon as possible after the beginning of the operation and an appropriate airspace restriction requested by the responsible fire agency prior to or as soon as possible after beginning airtanker operations. (Request all temporary flight restrictions from the ATC, but notify local tower and FSS.)
  - d) No operation shall be conducted until a positive communication link has been established between the airtanker coordinator or aerial supervision module (ASM), airtanker pilot(s), and the official directly supervising fire suppression for the responsible fire suppression agency.
  - e) The official supervising fire suppression for the responsible fire agency or designee shall advise the ASM that all nonessential people and movable property have been cleared from the area to be treated by airtankers prior to commencing airtanker operations.
  - f) The ASM shall be personally satisfied that no nonessential people or movable property will be placed in hazard by the proposed airtanker operation prior to ordering any airtanker drops.

- g) The first retardant pass of each series (repeated retardant drops using the same pattern) shall be preceded by a dry run flown on the same pattern as the planned retardant drops.

### **Aviation Hazards**

An aviation hazard is any condition, act, or set of circumstances that compromises the safety of personnel engaged in aviation activities. These hazards may address, *but are not limited to*, such areas as:

- Deviations from policies, procedures, regulations and instructions as contained in manual and handbook releases, interim directives, standard operating guides, etc.
- Hazardous materials handling and/or transport.
- Flight following.
- Deviation from planned operations, flight plan, type of use (e.g., general to special-use).
- Failure to utilize Personnel Protective Equipment (PPE) or Aviation Life Support Equipment (ALSE)
- Inadequate training, or failure to meet training requirements.
- Failure to utilize load calculations and/or manifests correctly.
- Weather conditions.
- Ground operations.
- Pilot procedures.
- Fuel contamination.
- Unsafe actions by pilot, air crew, passengers, or support personnel.

Aviation hazards also exist in the form of aerial hazards such as wires, low-flying aircraft, and obstacles protruding beyond normal surface features. Known aerial hazards must be identified. This is particularly crucial when aircraft are planned to be in the special-use profile of low-altitude flight. Each office will post and maintain a "known aerial hazard map" for the local operations encompassing areas where aircraft are operated (regardless of agency land ownership), and will be posted in dispatch centers and permanent helibases, air tanker bases, air attack bases, etc.



All aviation personnel are responsible for hazard identification and mitigation. This includes pilots, flight crew personnel, aviation managers, incident air operations personnel and passengers.

An aircraft incident is an unplanned event that results in damage which meets less than serious aircraft incident criteria, or injury not requiring medical attention (first aid only). Examples of incidents are:

- Injury to personnel requiring only first aid.
- Damage to aircraft (less than accident criteria).
- Forced landing necessitated by failure of engines, systems or components.
- Precautionary landing necessitated by apparent impending failure of engines, systems or components or incapacitation of the flight crew.
- Aircraft ground mishap (mishap in which there is no intent to fly).
- Ground damage to aircraft (damage is incurred requiring repair or replacement before flight).
- Near mid-air collision (when airborne aircraft encroaches within 500 feet of another airborne aircraft or a pilot or crew member determines that a collision hazard existed).

### **Accidents**

The definition for aircraft accident is lengthy and fairly technical. An investigation team will make the final determination as to classification. In general, if an occurrence was more serious than those described under the definition of "incident" above, then the occurrence should be treated as an accident.

### **SAFECOM –Incident/Hazard/Maintenance Deficiency Reporting**

The Department of the Interior agencies and USDA Forest Service have adopted a common incident/hazard reporting form. It is called the SAFECOM (Safety Communiqué). The local aviation management staff or designated individual is responsible for immediate completion and transmittal of the form. In their absence, any responsible agency individual with knowledge of the accident should make the report. The form is routed immediately to OAS, the agency's headquarters office, state aviation manager, and national aviation safety manager.

The report shall be forwarded by electronic mail or telefax to the state aviation manager within 72-hours after occurrence. Notify OAS and BLM aviation safety managers whenever an aircraft mishap involves damage or injury. Use the hot line or the most expeditious means possible. Call 1-888-464-7427.

The objectives of the form are:

- To report any damage or injury less than accident criteria and any condition, act, observance, maintenance deficiency or circumstance which has potential to cause an aviation-related accident.
- To document all aviation hazards and incidents.
- To perform trend analyses for short- or long-term changes in policy and procedures, identify areas needing training, etc.
- To provide accountability for aviation mission participants and employee safety.

It is the responsibility of any individual (including contractors) who observes or who is involved in an aviation mishap to report the occurrence immediately to local aviation management staff. The local aviation manager is responsible for reviewing the report and forwarding it through agency channels. Within 48 hours after an aircraft incident, aviation hazard, or maintenance deficiency, the local aviation manager or participant in the flight shall complete and submit the SAFECOM Form. Timely reporting is essential in problem identification and accident prevention.

The agency with operational control of the aircraft at the time of the occurrence is responsible for completion of the SAFECOM and to submit it through its agency channels.

Under 49 CFR 830 the operator is responsible for notifying the National Transportation and Safety Board (NTSB) of any accident.

## Operations

Due to the volume of reference material contained in aviation policy and procedures documents, as well as their continual updating, specific procedures or guidance are not addressed below for fear of omitting some item of critical information.

It is the responsibility of aviation managers and associated personnel (pilots, dispatcher, fire managers, etc.) to obtain the necessary documents and become familiar with their contents.

The *Departmental Manual 350-354 DM* and *Manual 9400 Aviation Management* are the umbrella documents for aviation policy and operations in the bureau. See Chapter 7, *Suppression Resources*, for more operational procedure information for tactical aviation resources.

## Helicopter Operations

**PPE Requirements** As stated in the IHOG, for firefighters “the only acceptable situation where a hard hat may be substituted for a flight helmet is as follows: passenger transportation between an established, managed helispot/helibase and an established, managed helispot/helibase.” Firefighters in this case are defined as hotshot crews and other hand crews being shuttled to and from camp, primarily on large project type fires. All other firefighters, e.g., initial attack helitack crews, miscellaneous fire overhead for recon and scouting, will be required to wear full PPE, including a flight helmet.

The IHOG is the primary reference for BLM personnel conducting helicopter operations. The *Interagency Heli-Rappel Guide* (IHRG) is the reference for helicopter rappel operations; all fire rappel operations must be in compliance with the IHRG and approved by Director, Office of Fire and Aviation. The *Interagency Aerial Ignition Guide* (IAIG) is the reference source for all aerial ignition activities.

These guides (IHOG, IHRG, and IAIG) were developed to define and standardize national interagency operating procedures for all helicopter operations, both fire and non-fire; facilitate the exchange of personnel from other agencies during periods of high fire activity (through standardization); provide a common interagency approach in the government's relationship with helicopter contractors; provide checklists, operational requirements, and special instructions for personnel at helibases; and provide a framework within which each government helibase with contract helicopters can provide supplemental site-specific guidance.

All personnel conducting rotor-wing operations should be knowledgeable of the contents of this document and have it available.

**Helicopter Crew Personnel** Chapter 2 of the IHOG contains required experience, training, and qualification requirements for each helicopter crew position. Refer to Chapter 7 of this document for additional information.

**Rappelling** The IHRG is the standard and reference source for BLM helicopter rappel operations. All BLM fire rappel operations must be in compliance with the IHRG and with those standards found in Chapter 7 of this document.

**Aerial Ignition** The IAIG is the reference source for BLM aerial ignition operations. All BLM aerial ignition operations must be in compliance with the IAIG.

## **Air Tanker Base Operations**

Large air tankers are procured under national contracts. The management of these resources is governed by the requirements of the Departmental Manual, *BLM Manual 9400*, and the *Interagency Air Tanker Base Operations Guide* (IATBOG). Air tankers are operated by commercial vendors in accordance with Federal Aviation Regulation Part 137.

The IATBOG is the reference source for all air tanker base operations. This guide defines and standardizes national interagency operating procedures at all air tanker bases; facilitates the exchange of personnel from other agencies during periods of high fire activity (through standardization); provide a common interagency approach in the government's relationship with air tanker and retardant contractors; provide checklists, orientation outlines, and special instructions for personnel at air tanker bases; and provides a framework within which each air tanker base can provide supplemental site-specific guidance.

All personnel conducting air tanker base operations should know this document and have it readily available.

The startup/cutoff times as outlined in the (Draft) *Interagency Leadplane Operations Guide* (ILOG) shall be followed. (These require air tactical or leadplane supervision of air tanker operations prior to or after sunrise and sunset.)

***Air Tanker Base Personnel*** The IATBOG identifies a generic table of organization and recommended staffing level for air tanker bases. This guide also describes the duties of various positions used at air tanker bases. There is currently no identified training for the positions at air tanker bases, however the IATBOG contains a chart identifying recommended training for each position. It is also critical that reload bases staff up commensurate with the need during periods of moderate or high fire activity at the base.

### **Single Engine Air Tanker (SEAT) Operations**

An *Interagency SEAT Operating Guide* (ISOG) has been developed and approved as policy by both the BLM & USFS, and published (NFES # 1844).

Since a SEAT Manager is now required to be assigned to SEAT operations, a SEAT manager course has been developed.

### Leadplane Operations

The (Draft) *Interagency Leadplane Operations Guide* (ILOG) is adopted by the Office of Fire and Aviation as operating procedures for BLM leadplane operations. Unless for reasons of safety, any deviation from the policies or procedures contained in the ILOG must be approved in writing by the Director, Office of Fire and Aviation. Refer to Chapter 7 for policy.

The only approved low-level (below 500' AGL) operation in fire suppression activities are leadplane and paracargo missions with approved pilots, aircraft, and aircrew.

The ILOG is the reference standard for leadplane operations. This guide was developed to define and standardize national interagency operating procedures for lead planes; facilitate the exchange of personnel for other agencies during periods of high fire activity (through standardization); and provide checklist, orientation outlines, and special instructions for lead plane pilots.

All personnel conducting or involved in lead plane operations (e.g., ATGSs) should know this document and have it available.

### Air Tactical Operations

The air tactical group supervisor (ATGS) is primarily responsible for coordination of aircraft operations when fixed and/or rotor wing aircraft are operating on an incident. Specific duties and responsibilities are outlined in the *Fireline Handbook* (PMS 410-1). Coordination of airborne resources is performed by the ATGS. The ATGS reports to the air operations branch director (AOBD), or in the absence of the AOBD, to the operations section chief, or in the absence of the operations section chief, to the incident commander. **When airborne, the ATGS works for the IC or operations chief, depending on the size of the incident.** When the positions are in use on an incident, the air tanker coordinator (ATCO) and helicopter coordinator (HLCO) will be supervised by the ATGS.

The (Draft) Interagency Air Tactical Group Supervisor Guide is adopted by the Office of Fire and Aviation as operating procedure for BLM air tactical operations. Unless for reasons of safety, any deviation from the policies or procedures contained in the ATGS Guide must be approved in writing by the Director, Office of Fire and Aviation.

The Interagency Air Tactical Group Supervisor Guide has been developed in order to develop and maintain an effective national interagency ATGS program, high standards in training, certification, operating procedures, equipment, and program safety. This document will be the reference for BLM personnel using air tactical group supervisors or functioning in that role on an incident.

All personnel conducting or involved with air tactical operations (e.g., leadplane pilots, helicopter coordinators) should know this document and have it available.

### **Smokejumper Operations**

The Smokejumper Operations Guide has been developed and is available from AFS or NIFC. Also see "Suppression Resources," Chapter 7.

### **Other Guides**

There are various other operational guides used to standardize field operations e.g. *Interagency Smokejumper Pilot Operations Guide* (ISMOG). These guides are in different stages of development. As they are completed, they will be added to the *Standards for Fire Operations*.

### **Agency-Owned Aircraft Operations**

The Office of Fire and Aviation has developed standard operating procedures for agency-owned fleet aircraft operations and maintenance. These are adopted as policy by the Office of Fire and Aviation.

### **Airspace Coordination**

The *Interagency Airspace Coordination Guide* (IACG) is adopted by the Office of Fire and Aviation as mandatory policy and operating procedure for BLM airspace coordination. Unless for reasons of safety, any deviation from the policies or procedures contained in the IACG must be approved in writing by the Director, Office of Fire and Aviation.

The IACG is the primary document to be used by BLM personnel (dispatchers, aviation managers, pilots, and ASMs) when dealing with airspace issues. This IACG, adopted as policy by both the director of OAS and the Director, Office of Fire and Aviation, and the USDA Forest Service promotes aviation safety by establishing safe, consistent, and standardized approaches to issues involving airspace and Federal land management responsibilities.

State aviation managers are the primary contact for airspace management issues.

## Flight Management/Flight Following

### Policy

The 9400 1a, the aircraft request/flight schedule form, will be used for approval and flight planning. This form will be completed between the chief dispatcher and flight manager for the mission. The flight manager will use this form to brief the pilot on the mission. Outlined below are the basics relating to flight planning, pre-flight briefing, and flight following.

Special use plans: Special use flights require approval by the immediate supervisor and final approval by the line manager.

### Types of Flights

There are two basic types of flights: **point-to-point** and **special use**.

Point-to-point flights typically originate at one developed airport or permanent helibase, with the flight direct to another developed airport or permanent helibase. Point-to-point flights are conducted solely for the purpose of transportation of personnel or cargo, and do not involve special use flight.

Special use flights are defined by exclusion as all flights not meeting the definition of "point-to-point" flight. As such, special use flight requires work to be performed in the air (e.g., retardant or water delivery, fire reconnaissance, smokejumper delivery), or through a combination of ground and aerial work (e.g., delivery of personnel and/or cargo from helibases to helispots or unimproved landing sites, rappelling or cargo letdown, horse herding). Special use flight inherently require greater planning due to the greater number of hazards and consequent higher degree of risk commonly involved in non-point-to-point flights. These special use flights require approved pilots, air crew and aircraft.

A point-to-point flight is conducted at greater than 500 feet AGL (above ground level), with no descent at any time below 500 feet AGL. By exclusion, all other flights are special use.

### Fixed-wing Aircraft

**Point-to-point Flights** All BLM flights shall be approved using an aircraft request/flight schedule, BLM Form 9400-1a. This form is used to plan and track point-to-point flights.

Bureau policy requires the designation of a flight manager for each fixed-wing point-to-point flight transporting personnel. The basic duties and responsibilities of the flight manager are:

- 1) Pilot's card: check that pilot is qualified and current for aircraft type.
- 2) Aircraft card: check that aircraft is approved for mission, card current.

- 3) Flight plan/flight following: filed with FAA or agency, facilitate as needed (filing, opening, and closing the FAA flight plan is the responsibility of the pilot).
- 4) Pilot briefed on flight route/mission objective.
- 5) Pilot briefing to passengers.
- 6) Passengers: have received and understand briefing; all personnel on board are either air crew members, authorized or official passengers
- 7) Fiscal documents: ensure flight payment paperwork is accurate and, if BLM is paying for the flight, that the aircraft is under some type of procurement document, and all signatures secured.

***Tactical/Special-Use Missions*** Tactical flight missions are aircraft operations associated with initial attack of wildfires and large fire support. For wildfire suppression, these missions are requested and documented on the aircraft resource order form, **not** the aircraft flight request/schedule.

PPE is required for a special-use mission.

All personnel will meet training and qualification standards required for the mission.

Special use flight for fixed-wing aircraft includes the following flight missions:

- Flights conducted within 500 feet of the surface
- Water or retardant application
- Parachute delivery of personnel or cargo
- Air tactical group supervisor operations
- Air tanker coordinator operations
- Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, pinnacles, or surface conditions
- Fire reconnaissance (precision recon)

## **Helicopters**

***Tactical/Special-Use Missions*** When dispatching contract or CWN helicopters for initial attack or other tactical missions, the 9400-1a is **not** required. In that case, Special use requirements are already met with existing unit operating plans or resource orders. The flight request Form 9400-1a is only used when requesting helicopters for non-tactical, non-fire missions.

Special use helicopter flights include the following flight missions:

- Flights conducted within 500 feet of the surface
- Water or retardant application



- Helicopter coordinator and air tactical group supervisor operations
- Aerial ignition activities
- External load operations
- Night vision goggle operations
- Hoversite/autosurvey
- Rappelling
- Aerial capture, eradication, and tagging of Animals
- Offshore vessel or platform landings
- Toe-in, single-skid and step-out landings (prior authorization or exemption required)
- Takeoff or landing requiring special techniques due to hazardous terrain, obstacles, pinnacles, or surface conditions
- Free fall cargo

The use of PPE is required for both helicopter flight missions and ground operations. The specific items to be worn are dependent on either the type of flight, the function an individual is performing, or the type of ground operation being conducted. Refer to the tables in Chapter 9 of the IHOG for specific requirements.

### **Flight Following**

Flight following is the responsibility of the scheduling office and will remain so until transferred through positive hand-off to another facility or office. This hand-off shall be documented. Flight-following reports from the aircraft are the responsibility of the Pilot-in-Command (PIC) in accordance with 14 CFR. Violation of flight following standards requires submission of Form OAS-34 per the Departmental Manual.

For tactical aircraft that cross dispatch area geographic boundaries, the receiving unit is responsible for confirming arrival of the aircraft via telephone to the sending unit, via dispatch channels.

Flight manager: Will brief the pilot using the 9400-1a. The flight manager is responsible for the welfare of the bureau employee(s) while on the mission.



# 14 – Reviews & Investigations



There are four general types of reviews; program management, preparedness reviews, specific fire reviews, and fire and aviation safety reviews.

## Program Reviews

Program reviews include the following:

- Operations evaluation review.
- Bureau fire program review.
- FMP review.

### Fire Program Review

The Office of Fire and Aviation will convene an ad hoc team to review bureau-wide fire activity during any year in which significant, unusual or controversial fire activity occurs. This review team will analyze the reports from national level reviews and appropriate state/geographic area reviews to determine what, if any, policy or operational changes should be initiated.

The review team will develop findings and recommendations and establish priorities for action.

### Review Levels

Reviews are accomplished at three levels, field office, state, and national.

**Local Level Review** This review should be conducted by the local manager or his or her designated representative. The manager will appoint other qualified persons, including the FMO (or an official who has designated fire program management responsibilities) to be a part of the review.

The purpose of this review is to provide the field office manager with information to recognize commendable actions and to take needed corrective action(s). As a minimum an oral review will be conducted. A written evaluation, prepared by the incident commander is required for all extra-period fires.

Costs associated with the review will be charged to the account assigned to the fire with the approval of the state FMO. A copy of the complete report will be sent to the state FMO, who will review it and, if appropriate, forward a copy to the Director, Office of Fire and Aviation.

**State Level Review** A state level review will generally be conducted for any fire that:

- Involves serious injury or significant property damage;
- Results in controversy involving another agency;
- Results in adverse media attention; or
- Results in a large expenditure of funds (\$250,000 or WFSAs projections of over \$250,000).

The state level review normally will be conducted at the field office where the fire occurred. It will be convened by the state FMO or his/her designated representative. It will be attended by the field office manager, the FMO, the incident commander(s) for the fire, and other individuals agreed upon by the state director and field office manager.

If possible, the review team should visit the actual fire site as part of the review. A copy of the review report will be sent to the Director of the Office of Fire and Aviation. Costs associated with the review will be charged to the account assigned to the fire.

**National Level Review** A national level review will generally be conducted for any fire that involves bureau-wide or national issues, including:

- Fatality(ies) or multiple, serious fire-related injuries;
- Significant adverse media or political interest;
- Multi-regional resource response;
- A substantial loss of equipment or property;
- Large expenditure of funds (over \$500,000);
- Any other fire that the director wants reviewed.

The national level review normally will be conducted at the field office where the fire occurred. It will be convened by the Director, Office of Fire and Aviation, or designated representative. It will be attended by the field office manager, FMO, state FMO, incident commander(s) for the fire, and other individuals agreed upon by the director and state director.

The review team should visit the actual site of the fire as part of the review. All costs associated with the review will be charged to the account assigned to the fire.

### **Operational Evaluations**

Operational evaluations of field offices and states will include the review of fire management programs to assure compliance with established BLM standards.

## Preparedness Reviews

Pre-season preparedness reviews are intended to provide comprehensive operational inspections, evaluations, and reports on BLM fire programs. Standards for conducting fire preparedness reviews are found in the *Interagency Fire Readiness Review Guide, 1996* and the *BLM Fire Preparedness Review Guide 1998*. State offices must ensure reviews of all field offices with fire programs are done annually. The reviews are to take place at the beginning of the fire season. Involvement of line management, and cooperators, where applicable, is critical. The Office of Fire and Aviation must be notified once inspections are completed. Notification should include assistance needed to correct any critical deficiencies.

### Purpose

The purpose of the fire preparedness review is to assist the agency administrator in preparing for and operating during the fire season. It also serves as a mechanism to identify deficiencies, recommend corrective actions and establish the need for follow up to the corrective actions.

### Objective

The objective of the fire preparedness review is to provide a comprehensive evaluation and report on BLM fire preparedness.

### Policy

Preparedness reviews are required to be conducted annually.

### Elements

The following major elements must be considered when conducting a fire preparedness review. Safety considerations are the most important aspect of the review. Standard elements required to be addressed in the review are as follows:

- Management direction and consideration (line management and fire)
- Fire operations and procedures
- Fire business management and administration support
- Fire equipment
- Fire dispatch operations
- Fire safety
- Fire facilities
- Training
  - ♦ Fire
  - ♦ Physical
- Organization and staffing
- Fire management planning level
- Fire air operations

- Prescribed fire operations

### **Review Teams**

As a minimum, participation should include expertise in the areas of:

- Line management
- Fire operations
- Fire management
- Fire business management practices
- Dispatch/logistics
- Aviation

This expertise can be internal, interagency, or contract services. Including expertise from other states is encouraged and would facilitate exchange of ideas. Managers will determine the makeup of the review teams when the preparedness reviews are conducted at the field office level. The state director shall determine the makeup of the review teams when the reviews are conducted as part of a statewide preparedness review. The Director, Office of Fire and Aviation, will determine the makeup of the review team for national reviews.

### **Frequencies**

Field office managers will conduct preparedness inspections annually. State directors will conduct preparedness reviews to evaluate all field offices within two years. The Director, Office of Fire and Aviation, will conduct preparedness reviews annually so that all states are reviewed within a three-year period.

***Fire Preparedness Standards*** State offices are responsible for conducting fire preparedness evaluations of all BLM offices in their state. BLM fire preparedness review standards are found in the *BLM Fire Preparedness Guide*.

- A final report for each field office will be prepared and routed through the state director to the field office manager.
- A copy of each report will be sent to the national office by July 15 of each year, with any notification of assistance required to correct identified critical deficiencies.
- When performing reviews of interagency dispatch centers, the review team will conduct a close-out meeting with the local interagency management group.

## Fire Reviews

### Purpose

The purpose of fire reviews is to examine all or part of the operations on an individual fire. Generally they occur because of a safety concern, large financial expenditures, or operational deficiency. Fire reviews should also be conducted on well managed and efficient fires in order to document efficient procedures for future use.

### Objectives

Each review help determine facts related to the specific fire or fire management program. The review will identify commendable actions, techniques, and decisions as well as areas which need improvement. **Reviews are intended to resolve operational issues, not impose punitive actions.**

### Policy

All escaped prescribed fires will be reviewed. All entrapments and fire shelter deployments will be reviewed. Fires with projected large expenditures of funds will be reviewed, i.e., \$250,000 projected in WFSA.

All wildland fires and fire-related incidents will be reviewed. The approving signature on a DI 1202 will serve as sufficient documentation of an informal review on simple fires involving small acreage and in which no unusual events occurred.

Sufficient information on all other fires will be provided to allow the state FMO, in consultation with the field office, to recommend the appropriate level of review, if any. This must be done within 30 days after the fire has been declared out. The field office manager and/or state director will act upon that recommendation and schedule the review.

Fire reviews include the following:

- "Hotline" review;
- Incident management team closeout and review;
- Wildland fire review;
- Prescribed fire review;
- Entrapment and/or fire shelter deployment review.

**"Hotline" Review** The purpose of the hotline review is to examine the progress of an on-going fire incident, regardless of size. The review will provide a confirmation of the decisions being made daily in the WFSA or determine where the decision process has been faulty and corrective actions are needed.

The "hotline" review is normally conducted by the FMO (or an official who has designated fire program management responsibilities) in conjunction with the incident commander on the fire.

These reviews require no special reporting. Documentation of "hotline" reviews should be included in the normal fire report narrative.

***Incident Management Team (IMT) Closeout and Review*** The agency administrator will conduct a close-out review with the IMT prior to its release from the fire incident. The purpose of this review is to ensure complete transition of the incident management back to the local unit, to evaluate the status of any incomplete fire business, and to bring forward any issues, both positive or suggested improvement.

***Wildland Fire Review*** These reviews are conducted to examine the progress of an on-going fire incident and to confirm effective decisions or correct deficiencies; to identify new or improved procedures, techniques or tactics; to compile consistent and complete information to improve or refine field office, state or national fire management programs; to examine anomalous fire-related incidents in order to determine cause(s), contributing factors, and where applicable, recommend corrective actions( if negligence is indicated, the circumstances will be reported and investigated in accordance with applicable regulations, policies or guidelines); and to determine the cost effectiveness of a fire operation.

***Prescribed Fire Review*** A prescribed fire that escapes and requires an expenditure of suppression funds or results in injuries or fatalities will be investigated. *Bureau Manual 1112- Safety, Paragraph .22* outlines accident investigation procedures. The following guidelines apply to escaped fire reviews.

The objectives of the prescribed fire review are:

- To prevent future escapes from occurring and to establish accountability.
- To determine if the prescribed fire plan was adequate.
- To determine if the prescription, actions, and procedures set forth on the prescribed fire plan were followed.
- To determine if overall policy, guidance, and procedures relating to prescribed fire operations are adequate.
- To determine the level of awareness and the understanding of procedures and guidance of the personnel involved.
- To determine the extent of prescribed fire training and experience of personnel involved.



Responsibilities for prescribed fire reviews are:

- **Fire Management Officer** – The fire management officer is required to investigate all escaped prescribed fires either personally or through designated investigator.
- **Field Office Manager** – The field office manager ensures adequate and proper investigation of all escaped prescribed fires that result personal injury, burn onto private or other agency land, or have expenditures of up to \$50,000 for suppression and/or property damage. The field office manager may appoint an investigation team or request that one be appointed consistent with *BLM Manual 1112, Safety*, paragraph .22D, Accident Investigations.

The field office manager will notify the state director of escaped prescribed fires meeting the criteria in the *Prescribed Fire Handbook* within 24 hours. Copies of the completed review report will be sent to the state director and SFMO.

- **State Director** – The state director ensures adequate and proper investigation of all escaped prescribed fire that result in serious or multiple personal injury, significant burned area on private or other agency land, or have an estimated expenditure from \$50,000 to \$100,000 for suppression and/or property damage.

The state director will notify the Director, Office of Fire and Aviation, of escaped prescribed fires meeting the criteria in the *Prescribed Fire Handbook*, within 24 hours. Copies of the completed review report will be sent to the Director (FA-100).

- **Director, Office of Fire and Aviation (FA-100)** – The director ensures adequate and proper investigation of all escaped prescribed fire resulting in fatality(ies), injury to people not involved in the prescribed fire operation, fire shelter deployment(s), a major transportation route closure, smoke significantly impacting a major population center or causing a public health concern, or have expenditures exceeding \$100,000 for suppression and/or property damage.

The documentation required for a review are listed below. A review team will be provided with all of the **original** documents related to the incident.

- The prescribed fire plan, a chronology of events including the prescribed fire report and unit logs or individual statements, the fire investigation report, weather forecasts including any spot forecasts, RAWs data, and NFDRS data for the day of the escape for the nearest weather station, photos, and any appraisal of damages.

- Documents pertaining to the qualifications and experience of the prescribed fire burn boss, ignition specialist, holding specialist, and other key overhead. This includes red cards, training and experience records, and task books.
- Dispatch logs, radio logs, and any aviation records or logs.

### ***Outline for Final Reports of Fire Reviews***

This format is provided to develop consistency in the BLM fire review reporting system. This format will ensure efficient review of reports at the field office, state, and national levels.

Fire reviews will follow the general outline listed below. The list of subjects is included for consideration, but only those commendable actions, policy issues or correctable deficiencies identified by the team need to be included in the written report.

- **Introduction** – This section will include the names, titles, agency/home units, fire qualifications and business phone numbers of the review team members. Information regarding the date and place of the review is also included.
- **Summary Narrative** – This section should contain the basic who, what, when, where, how and why, and should serve the purpose of an executive summary. Unusual major events should be mentioned, but not detailed.
- **Findings and Recommendations**
- **Action Items**

### **Distribution of Reviews**

State FMOs will be responsible for determining specific information from fire reviews that might be of interest or concern to other areas. Such information might be specific problems that occurred or recommendations that might be applicable elsewhere. SFMOs will forward this information within 30 days to the Office of Fire and Aviation for appropriate distribution.

### **Appendices**

Include all documents relevant or required for the particular fire to provide a clear and detailed picture of the incident, including:

- WFSAs with all updates;
- IAPs showing incident strategy and any changes in tactics;
- Map of the fire, by burning periods;
- Incident status summaries (ICS-209);

- Precipitation record and NFDRS ten-day fire danger records with graph of fire danger indices;
- Weather information including previous day's forecast, subsequent daily forecasts throughout the incident, and all fire behavior predictions generated as a result of these forecasts;
- Completed Individual Fire Report, DI-1202;
- Display maps showing fuel models, transportation system, communication points, and any other information deemed necessary to understanding of the incident;
- Personnel and equipment charts showing buildups by burning periods
- Detailed financial summary of the incident.

## Fire and Aviation Safety Team

### Purpose

To assist the agency administrator(s) during periods of high fire activity, the Fire and Aviation Safety Team (FAST) will provide an assessment of overall policy, rules, regulations and management oversight; ensure an effective execution of safety-related fire and aviation issues; and provide suggestions and guidance for safe and effective programs.

There are two levels of fire and aviation safety reviews. Field units are encouraged to establish and dispatch FASTs through their geographic area coordination centers for reviews at the state and field office level. If a more comprehensive review is necessary a national FAST can be ordered.

### Objectives

Agency administrators should review the following before developing specific objectives for the assigned FAST. These are suggested objectives; you are not limited to them:

- Compliance with existing/current OSHA abatement plan(s), reports, reviews, and evaluations.
- Compliance with BLM's *Standards for Fire Operations* (qualifications, policies, process, procedures). Specifically address preparedness plan, work/rest, qualifications and training, adherence to 10 Standard Fire Orders and 18 Watch Out Situations, fire and aviation operations, personal protective equipment, briefings, management oversight and involvement, incident operations when appropriate, and general safety attitude in the overall program.

- Evaluate risk, management, oversight needs, and operational procedures.
- Work with appropriate agency administrators, fire and aviation staff, and safety managers to assess safety-related issues and recommend actions.

### **Recommended Team Makeup**

- Team leader (line officer, fire program lead with previous experience as a FAST member).
- Other member with a mix of skills—complex program fire manager, operations, safety, aviation, etc.
- Safety and health manager, depending on need.

### **Roles and Responsibilities**

#### **Team Leader:**

- 1) Ensure the team has an initial and closeout briefing with agency administrator(s) and staff(s) to identify areas of concern and what is going well!
- 2) Report observations and findings to appropriate authority (national, geographic area, etc.).
- 3) Receive specific objective(s) from the appropriate authority.
- 4) Communicate with designated national FAST liaison for tracking purposes and support.
- 5) Ensure that all team members travel in one group as much as possible.
- 6) Promote good team attitude; coach for success.
- 7) Ensure coordination with aviation safety and technical assistance teams, if a separate assignment occurs.
- 8) Ensure draft report is completed prior to closeout with requesting unit.
- 9) Submit a final report within seven days.

#### **Safety and Health Manager:**

- 1) Review program for compliance with designated agency safety and health program, including OSHA standards.
- 2) Review accident reports for accident trends.

#### **National FAST Liaison:**

- 1) Participate in team selection.

- 2) Coordinate with National Interagency Coordination Center for ordering and mobilization.
- 3) Brief and coordinate with national FAST, fire directors, Federal Fire and Aviation Leadership Council, et al.
- 4) Provide general briefing, expectations, and ongoing guidance to the team. Include length of assignment and itinerary.

### **Follow-up**

The team will gather and review all reports prior to end of calendar year to ensure identified corrective actions have been taken.

### **Report Elements**

- Executive Summary
- Purpose
- Objectives
- Methods/Procedures
- Findings
- Recommendations
- Follow-up actions
  - ♦ Immediate
  - ♦ Long-term
  - ♦ National issues
- Delegation (request letter)

### **Mobilization**

Mobilization of a national FAST will be through the National Interagency Coordination Center. Mobilization of a geographic area FAST will be through the geographic area coordination center.

### **Team Expectation**

- Length of assignment will depend on complexity and objectives, usually five days.
- Equipment will include field and office clothing, laptop computer, cellular telephone or pager.
- Travel depends on location and need.
- Funding will be assigned on the resource order.
- Standard protocol will include, but is not limited to:
  1. Assisting the ordering office in providing fire and aviation oversight.

2. At mobilization, the team will be given a briefing from the national FAST liaison. The briefing will include ordering office, funding code, overview of situation, report time, location, person to report to, general request information, and mission.
3. The team will be assigned a liaison with the national FAST.
4. On arrival at the ordering unit, the team will receive an agency administrator's briefing, objectives, and (when appropriate) a delegation of authority.
5. When entering an administrative unit, check with agency administrator and fire staff. The team is there to assist and correct problems; not to review and find fault.
6. Close out with the ordering unit and submit reports.

## Fire Accident Reporting & Investigation

### Introduction

Reporting is imperative to the safe operation of any program. Accurate and timely reporting provides many benefits. Hazardous trends, unsafe conditions, and faulty equipment are identified and can be addressed and corrected.

### Policy

In fire accident reporting and investigation, BLM units will follow BLM safety reporting requirements commensurate with the specific accident. Proper application of these procedures is dependent on accurate interpretation of the accident/incident scope to ensure appropriate reporting.

**Management and Command Responsibilities** Incident commander responsibilities (in addition to those identified in ICS 410-1, *Fireline Handbook*):

- On notification of an entrapment the incident commander should consider:
- Removing involved personnel from the fireline, while ensuring appropriate medical attention is received. When hospitalization or fatalities occur, relevant facilities and organizations should be advised to preserve all involved personnel's protective clothing and equipment.

Ensuring that the entrapment or deployment scene is secured and all pertinent evidence is secured (in place if possible), particularly fire shelters and personal protective equipment as required by the Occupational Safety and Health Act.

- Immediately notifying the agency administrator and providing details on the incident status summary (ICS-209).
- Initiating a preliminary investigation of the entrapment or deployment to determine the facts of the entrapment, if possible. The initial investigation will be completed within 24 hours of the entrapment.
- Relieving involved supervisors from fireline duty until the preliminary investigation has been completed.
- Ensuring that personnel and supervisors are readily available for interviews by the entrapment investigation team (EIT, below defined). "Available" means present at the incident base or nearby R&R center.
- As soon as possible, providing the results of the incident commander's preliminary investigation to the EIT. Ensure a roster of individuals involved in the entrapment is developed. The roster must minimally contain names, employing agency, genders, ages, addresses, incident position titles, and appropriate employee identification numbers.

**Agency Administrator Responsibilities** Upon notification of an entrapment or deployment, the agency administrator should ensure the following activities take place within 24 hours of notification:

- Convene an EIT to investigate the entrapment. The EIT will be interagency, initially requested through geographic area coordination center, and include personnel:
  - ♦ Incident commander or operations section chief (Type 1).
  - ♦ Fire behavior analyst, qualified in the incident-specific fuel type.
  - ♦ Safety manager (chief investigator or with investigative expertise).
  - ♦ Wildland fire operation specialist with expertise at the peer level of the person(s) directly involved.
  - ♦ Agency representative of involved person(s).
  - ♦ Employee representation (union, peer at operations level).
  - ♦ Fire weather meteorologist.
  - ♦ Personal protective equipment specialist, from a lab such as the USDA Forest Service's Missoula Technology and Development Center.
- Instruct the EIT to arrive on scene within 24 hours.
- Advise the incident management team of the EIT's time of arrival and team composition.
- As required by the Occupational Safety and Health Act of 1970, advise the nearest office of the OSHA (federal or state as applicable) if the entrapment involves a fatality or the hospitalization of five or more personnel. Advise OSHA that a formal investigation is being conducted by a designated EIT.

- Arrange for a critical incident stress debriefing team for the personnel involved in the entrapment.
- Notify the home unit agency administrator of all individuals involved in the entrapment/deployment.
- Submit a copy of the EIT's final report to the BLM Office of Fire and Aviation and the NWCG Safety and Health Working Team (SHWT) within 60 days of receipt from the EIT.

#### ***Entrapment Investigation Team Responsibilities***

- The EIT will conduct the investigation, identify causal factors and list findings for the entrapment situation. Recommendations for corrective actions should be included in the letter of transmittal.
- The EIT will brief the agency administrator and the incident commander of their preliminary findings prior to leaving the incident.
- Within 30 days of the EIT's dispatch, their final report and recommendations for corrective actions will be submitted to the agency administrator.

#### ***NWCG Safety and Health Working Team Responsibilities***

- Within 30 days of receipt of each entrapment report, the SHWT will distribute a summary of the applicable findings to NWCG agencies and the National Fire Protection Association, per the NWCG "Safety Gram." This summary will not include any incriminating agency references or information identified as sensitive by the agency.
- The SHWT will periodically review all entrapment reports, determine trends, and incorporate findings to develop specific prevention recommendations for implementation by NWCG agencies.

***Guidelines for Fire Entrapment Investigations*** These guidelines provide minimum criteria for entrapment investigations, and standardization of entrapment reports—with the intent of gathering complete and accurate data. Ultimately, the data can be used to identify trends and problems related to fire entrapments.

The guidelines are not an investigation checklist, but rather a guide to ensure that, at a minimum, the investigation process addresses items included in the guidelines.

#### **1. General Information**

State	Wildland or prescribed
Field office or resource area	Multi-start fire – yes or no
Fire name and number	



- |                                  |                                       |
|----------------------------------|---------------------------------------|
| Phase of fire:                   |                                       |
| Initial attack (direct/indirect) | Land management jurisdiction          |
| Extended attack                  | Fire season (locally)—active/inactive |
| Complex                          | Current agency issues                 |
| Mopup                            | Current political issues, including   |
| Demobilization                   | review of:                            |
| Transition                       | Delegation of authority               |
| How many days into fire          | WFSA                                  |
|                                  | Severity status                       |
- 2. Incident Management**
- |   |            |
|---|------------|
| Incident objectives                       | Team type: |
| Strategy                                  | local      |
| Tactics                                   | type 1     |
| Plans (i.e., action plans)                | type 2     |
| Safety briefings/major concerns addressed | type 3     |
| Instructions given                        | type 4     |
- 3. Entrapment Specifics**
- |                          |  |
|--------------------------|--|
| Time of day              | Diagrams/sketches                      |
| Day of week              | Resource availability (local/national) |
| Month                    | Structures threatened                  |
| Location including       | Resource values at risk                |
| latitude/longitude       | Resource objectives                    |
| Supervisory controls     | Injury severity:                       |
| span of control          | Number and type injuries               |
| communications           | Number of people hospitalized          |
| [Note: refer to human    | Number of fatalities                   |
| factors/decision making] | Direct cause of fatalities             |
| Witness statements       |  |
| Photos                   |  |
- 4. Fire Behavior**
- |                       |                   |
|-----------------------|-------------------|
| Predicted vs observed | Wind              |
| Topography            | Red flag watch    |
| Fuels                 | Red flag warnings |
| Weather               | Temperature       |
|                       | Relative humidity |
- 5. Environmental**
- |            |             |
|------------|-------------|
| Visibility | Slope       |
| Smoke      | Temperature |
| Inversion  | Other       |
- 6. Control Mechanisms**
- Span of control
  - Communications
  - Ongoing evaluations
  - 10 Standard Fire Orders: How many violated? Which ones?

18 Watch Out Situations: How many were compromised? Which ones?  
 Lookout(s)-Communications-Escape Routes-Safety Zones: Identified?  
 Marked?  
 Downhill Line Construction Guidelines: Followed? If not, why?  
 Number of documented reports of unsafe working conditions  
 Any previous situations with entrapment potential on this incident? If so,  
 what were they?  
 Medical logs reviewed (if applicable)  
 Protective measures (refuge)  
 Communications issues:  
 Any language barriers?  
 System breakdown, i.e., information did not get to crew.  
 Communication system adequate, or a contributing factor?  
 Type of communications (radio or cell phone)  
 Radio frequencies  
 Briefings:  
 Safety Written/oral, and by whom  
 Work shift Weather  
 Fire behavior

**7. Involved Personnel**

Total people involved in entrapment  
 Leadership  
 Experience levels

*For the following categories, identify the number of each involved in this entrapment:*

Organization	_____	Resource Type	_____
Contractor	_____	Hotshots	_____
Rural fire department	_____	Smokeyumpers	_____
Military	_____	Helitack	_____
National Guard	_____	Support	_____
State	_____	Engine crew	_____
Federal	_____	Water tender	_____
Tribal	_____	Dozer	_____
Other (e.g., media, volunteers)	_____	EFF	_____
		State agency Type 2 crew	_____
		Tribal Type 2 crew	_____
		Regular agency Type 2 crew	_____

Work/rest ratio for each firefighter:  
 Number of hours of sleep within 24 hours prior to entrapment.  
 Type of sleep environment provided.  
 Number of hours worked on this shift (prior to entrapment).

Number and time (minutes) of breaks per hour provided prior to entrapment.

Most recent day off for each firefighter.

Occupational series

Function/assignment on fire

Crews' home base or hiring office (EFF)

Chronic personal health issues, i.e., asthma, heart disease, diabetes

Health complaints on this incident

Injuries reported

Hydration/nutrition (last 24 hours):

Number of meals

Type of food provided

Amount and type of drink provided

Miscellaneous snacks provided

Critical incident management followed?

Training/qualifications/experience:

Current training/qualifications for the job they are doing

Date of training

Amount of training

Red card qualifications

Physical fitness (WCT)

Medical clearance

Was PT available to involved personnel?

Total fire experience

Experience in current assignment

Currency in current assignment

**8. Human factors/decision making:**

What were the assignments prior to the entrapment?

Did the assignment coincide with incident action plan? Why or why not?

Was work being performed safely or were compromises made to accomplish the mission?

Were direct orders followed prior to entrapment?

Were instructions/orders clear and understood prior to entrapment?

What decisions were made prior to entrapment?

Were decisions made under stress sound ones?

(See Appendix A for further detail regarding human factors.)

**9. Equipment/PPE**

PPE/attire: provided, condition, carried

Trained in use? In use? Being used properly?

Shelters deployed: yes \_\_\_ no \_\_\_

How many shelters deployed?

Were shelters effective?

Type of equipment (engine, handtool, etc)

Failure/breakdown (engine, shelter, etc)

**10. Narrative**

*Background, summary, comments, abstract, conclusion*

**Human Factors** The purpose of this section is to assist investigators in determining why certain actions were taken and decisions were made before, during, and after an entrapment. In following the question “why” during an investigation, the team can gather accurate and thorough information that may prevent a future entrapment.

Entrapment investigators should use the six-step process shown below as an interview guide to help determine events that led up to the entrapment. The interview process, conducted by a trained investigator, should follow standard protocol (interview witness individually, utilize control questions, use no leading questions, etc.) should create a timeline of the incident, action-by-action.

During the interview process, the investigator should ask the interviewee to specify action-by-action what he/she did during the time leading up to, during, and following the incident. The interviewee should be asked to describe why he/she took a particular action. The model shown in Figure 1 can assist in this information gathering process.

**Step 1: Perceiving the state of the world.**

For example:

- Visibility was either adequate or inadequate for the firefighter to identify the threat. If the answer is “inadequate,” ask why. What caused the poor visibility? Ask why firefighter was kept in a low-visibility area.
- Radio communications either did or did not occur to keep the firefighter abreast of the unfolding situation. If the answer is “did not,” ask why. Why weren’t radio communications keeping the firefighter up to date?
- A lookout was or was not posted to gather information. If no lookout was posted, ask why. Also determine why the particular lookout post or individual was selected. Evaluate the lookout’s training and expertise.

**Step 2: Interpreting and evaluating the perceived information according to what is expected.**

After determining whether or not the firefighter was able to accurately perceive the state of the world, the investigative team should begin to address how the firefighter interpreted and evaluated the information gathered. When people interpret and evaluate information, they compare it with what they expect, given their knowledge of the area and the unfolding situation. For example, investigators need to determine if:

- Interpretations were consistent with those outlined in training. If not, ask why.

- Radio communication patterns indicated that the firefighter correctly interpreted and understood information. If transmissions indicated the firefighter *did not* correctly interpret incoming information, ask why.

**Step 3: Setting goals.**

After the investigative team has determined whether or not the firefighter was able to accurately interpret and evaluate gathered information, it should address how the firefighter set goals to deal with the unfolding situation. For example, investigators need to determine if:

- Radio communication patterns indicated the firefighter knew the correct mode of behavior given the unfolding situation. If not, ask why.
- The firefighter received feedback following each transmission, confirming or questioning her/his goals. If these acknowledgments did not occur, ask why.

**Steps 4 and 5: Developing an intention to act and deciding on an actual sequence of actions.**

After the investigative team has determined whether or not the firefighter was able to accurately interpret and evaluate gathered information, it should address how the firefighter set goals to deal with the unfolding situation. For example, investigators need to determine if:

- Radio communication patterns indicated the firefighter selected an appropriate objective as well as an appropriate means to achieve it. If he/she did not, ask why. Did the firefighter understand the local terrain well enough to make a good action plan? Did the firefighter receive a briefing? If so, what was the content of that briefing?
- The firefighter searched for and evaluated alternative courses of action. If the firefighter did not, ask why.

**Step 6: Carrying out the sequence of actions.**

After the investigative team has determined whether or not the firefighter was able to establish an action plan, it should address how the firefighter actually carried out the actions. For example, investigators need to determine if:

- Radio and other communication patterns indicated that the firefighter monitored her/his progress while carrying out the actions. If not, ask why.
- The firefighter received feedback following each transmission, confirming or questioning his/her progress in carrying out the actions. If these acknowledgments did not occur, ask why.

These kinds of questions can guide the investigative team as it interviews individuals who were working on the fireline or at the command level. Gathering this information will help determine how firefighters' actions and decisions potentially contributed to an entrapment.

Figure 1

**Factors Affecting Firefighter Performance**

Training & competency (lack of)  
 Currency  
 Mental workload  
 Anxiety/fear  
 Attentional requirements  
 Past behavior  
 Pas-present supervision  
 Past-present feedback  
 Fatigue  
 Experience  
 Currency of experience  
 Attitude  
 Motivation  
 Previous entrapments  
 Interactions with others  
 Days assigned to fire  
 Fire season activity  
 Threatened structures  
 Resource value  
 Communications  
 Fire behavior  
 Visibility  
 Terrain  
 Language barriers  
 Design of tools and equipment  
 Type of task  
 Strategy and tactics  
 Time restrictions  
 Leadership  
 Uncertainty  
 Overconfidence  
 Un/Familiarity with local factors  
 Briefing information  
 Time of day  
 Crew interactions/dynamics  
 Type of rewards and reinforcements

1. Person **perceives** the state of the world.

2. Person **interprets and evaluates** the perceived information according to what they expected.

3. Person **sets goals**: what they want to happen.

4. Person **develops intention to act** so as to achieve the goal.

5. Person **decides on actual sequence of actions**.

6. Person physically **carries out the sequence of actions**.

**Factors that Affect Humans** The items listed in Figure 1 represent characteristics of the individual and environment that can adversely affect the performance of firefighters. The items represent different levels of potential causal factors. Causal factors are usually not weighted the same.

Some entrapment investigations have focused primarily on causal factors of fire behavior, equipment failure, and weather. It is clear, however, the previous experience should be evaluated as well. Unsafe procedures or behavior may be reinforced when a group or individual “gets away with it” time after time. Behavior is consistent with past experience. Because behavior tends to be predictable, it is important that the investigation team consider historical aspects of the firefighters that might explain the actions preceding the entrapment.

**Maintaining Objectivity:** The trained investigator will be aware that unconscious biases and expectations on the part of the investigator and the entrapment victim can easily compromise the investigative process. It is essential that a trained investigator be a part of the team and monitor these biases to ensure objectivity of the investigation.

**Conclusion:** Addressing human factors when conducting an entrapment investigation involves understanding why a particular firefighter behaved as he/she did during the time leading up to the entrapment. While the firefighter's behavior is directly observable, the thinking that contributed to that behavior is not. A full understanding of the behavior cannot be developed unless the entrapment investigators address the thinking behind the scenes. Unfortunately, this information cannot be acquired by asking a series of pre-specified questions. Instead, investigators must collect *and* analyze information and then perhaps collect and analyze some more in an attempt to understand why the firefighter behaved as she-he did.

## Wildland Fire Serious Accident Investigation

### Purpose

This section augments *485 Departmental Manual 7* "Serious Accident Investigation," and *Forest Service Manual 6730* "Accident Reporting and Investigation." This single document complies with joint investigation obligations established in the Interdepartmental Memorandum of Understanding Between the US Department of the Interior and the US Department of Agriculture, October 26, 1995. It also results from direction received January 29, 1997, from both departmental Designated Agency Safety and Health Officers (DASHOs).

This specifies the requirements for conducting investigations involving wildland fire-related non-aviation accidents and incidents.

### Scope

This applies to accidents in wildland fire suppression or prescribed burning operations, or to personnel working in direct support of those activities, that result in one or more fatalities or the hospitalization of three or more personnel. It is strongly recommended that agencies also utilize these procedures for accidents or "incidents with potential" that have less serious results.

### Procedures

**Notification** In addition to routine agency administrative notification procedures, the following notification process will apply in wildland fire-related accidents/incidents.

- The **National Interagency Coordination Center**, when advised by the incident and/or the local agency administrator per standard operating procedures of the interagency coordination system, will advise the national fire director(s) or designee(s).
- The **fire director(s)** or designee(s) will ensure the following notifications, as a minimum, as soon as possible:
  - ♦ agency DASHO;
  - ♦ agency safety manager;

- ♦ OSHA (within 48 hours after the occurrence-29 CFR 1960.70);
  - ♦ chief investigator (mutually acceptable);
  - ♦ technical specialists;
  - ♦ interagency partners, as appropriate.
- The **agency DASHO** will ensure that the appropriate notifications are made, such as to the departmental DASHO and safety manager.

### ***Joint Accident Investigation Responsibilities***

The lead agency DASHO or designee will:

- Immediately appoint and authorize an accident investigation team leader and the safety and health manager. The team leader will be provided a delegation of authority, investigation objectives, and briefing.
- Ensure that the investigation team leader and safety and health manager are promptly dispatched, and that resources and procedures to do so are in place.
- Receive the factual and management evaluation reports and take action to accept or reject recommendations. The DASHO will advise the agency director of the investigation findings and recommendations.
- Convene a board of review, to evaluate the adequacy of the factual and management evaluation reports and suggest corrective actions.
- Ensure that a corrective action plan is developed, incorporating management initiatives developed to address the causal factors of the accident, based on the investigation recommendations.
- Transmit the investigation factual report and the management evaluation report, together with the corrective action plan to the departmental DASHO.

### ***Line Management will:***

- Identify agencies that have statutory/accident jurisdictional responsibilities for the incident.
- Develop local preparedness plans to guide emergency response to critical incidents.
- Provide for and emphasize the treatment and care of survivors.
- Brief investigation team.
- Facilitate and support investigation as requested.
- Implement critical incident stress management.
- In case of serious injury or death to a Native American, immediately contact home tribe leadership for cultural considerations.
- Ensure that the fire incident commander secures the accident site to protect physical evidence.



***Agency Fire Director(s) will:***

- Ensure adequate notification procedures are in place to promptly begin the accident investigation.
- Ensure that an appropriately qualified chief investigator and technical specialists and resources are available and immediately dispatched to conduct and support an investigation.

**Accident Investigation Team Composition**

The accident investigation team will include (duties, responsibilities, qualifications and training identified on pages 58-62):

- **Team Leader**—a senior management official. The team leader directs the investigation.
- **Safety and Health Manager**—an experienced OSHA specialist or manager. As a team member, ensures that the investigation focus remains on safety and health issues.
- **Chief Investigator**—a qualified accident investigation specialist responsible managing investigation operations. This person should be mutually acceptable to involved fire directors in a co-lead investigation.
- **Technical Specialists**—experienced personnel to address specific technical issues (weather, fuels, equipment, etc.).  
\* Entrapments will be investigated by an Entrapment Investigation Team.
- Administrative support personnel should help gather information and evidence, and to assist in document preparation and briefing materials.

**Wildland Fire Accident Investigation Process**

The **24-Hour Preliminary Brief** will be completed and forwarded by the agency administrator responsible for the accident. This brief is intended to give only the most obvious and basic facts about the accident. The factual brief based on preliminary findings may be widely distributed to managers and used to enhance accident prevention. The brief may be only one paragraph outlining limited facts; in the case of an entrapment and/or fire fatality(ies), this brief takes the form of the NWCG "Wildland Fire Entrapment/Fatality Initial Report", NFES 0869.

Upon initial notification of a serious accident, agency fire director(s) will immediately dispatch a chief investigator and technical specialists to the accident location to begin initial gathering of factual information and evidence. This includes photographs of the accident scene, environmental information, examination of equipment and materials, and other time-sensitive data.

The **team**, when assembled, will:

- Receive an **in-briefing** from the local agency administrator, to include the 24-Hour preliminary brief, as well as other general information about the accident.
- Produce a **72-Hour Expanded Brief**. This brief is an expanded 24-Hour brief, providing more detailed information about the accident. It may contain the number of victims, severity of injuries and other details to further enhance accident prevention. This is the first product of the investigation team.

- Examine technical and procedural issues related to equipment and tactical fire management. The team will then produce the **Factual Report**. This report contains facts only and contains no opinions, conclusions, and recommendations.
- Produce a **Management Evaluation Report**. This report is for internal use only, and explores management policies, practices, procedures and personal performance aspects involved with the accident. This report may contain opinions by investigators as to the cause of the accident; conclusions and observations; confidential information; and recommendations of corrective measures to prevent future occurrences.

The factual and management evaluation reports will be completed within 45 calendar days of the accident; extensions require departmental DASHO approval. The reports will be formatted according to the *Interagency Wildland Fire Accident Investigation Handbook*, and will be signed by the team leader, chief investigator, and safety and health manager. The reports will be submitted directly to the agency DASHO.

### **Review and Recommendations**

The agency DASHO will appoint a **Board of Review** before receipt of the factual and management evaluation reports. Within 21 calendar days of receipt of the two reports, the board of review will convene, and develop and forward a recommended corrective action plan to the agency DASHO. Within the same 21 calendar days, the agency DASHO will transmit the board's recommendations and the two reports to the departmental DASHO, with a statement of concurrence or nonconcurrence on the board's recommendations. The agency DASHO will also release the factual report.

In the event of a co-lead investigation, the same procedures and time limits will apply. Involved agency DASHOs will jointly appoint the board of review and jointly concur or nonconcur with the board's recommendations.

The agency safety office will be the **Office of Record** for the entire investigation file. That office will prepare an abstract of the accident for entry into the Departmental Safety Management Information System to share with other agencies, and OSHA.

The agency DASHO may make a presentation to the DASHO Council and/or other senior agency/departmental managers concerning opinions, findings, recommendations, and corrective actions included in the report.

The agency director(s) may be requested to personally brief the Secretary(ies) to explain the accident and corrective measures being implemented to prevent recurrence.

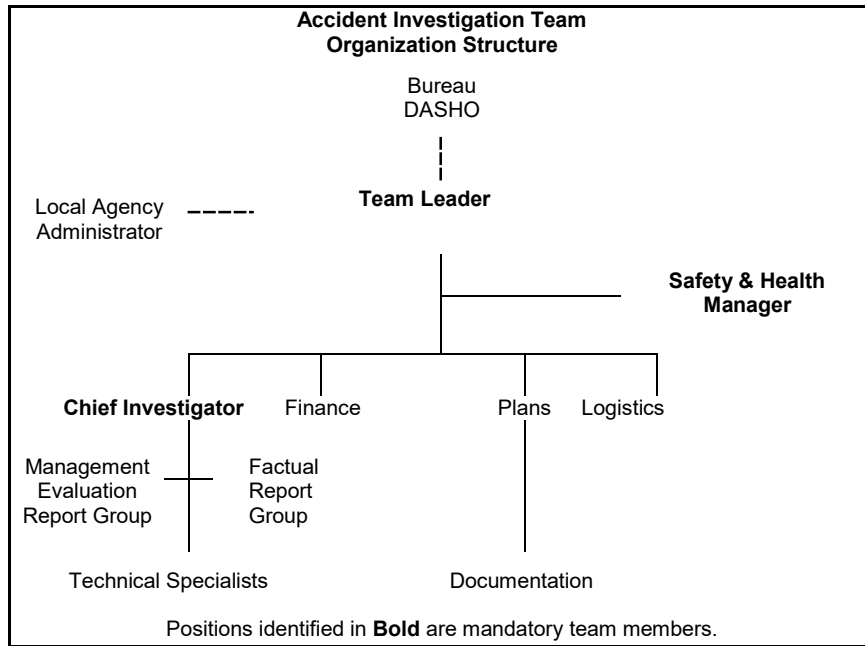
### **Occupational Safety & Health Administration (OSHA)**

OSHA should be offered the opportunity to participate in the investigation. It may choose to conduct a separate investigation of the accident. Nevertheless, all factual information and evidence will be made available to their investigators.

On completion of the investigation and reports, OSHA, on its request, will be provided with appropriate information, as identified in 29 CFR 1960.29(d).

## Accident Investigation Personnel

The following qualifications and training standards follow the National Wildfire Coordinating Group approach to qualifications and standards for the incident command system and fire skill positions: identify positions, describe duties and responsibilities, define qualifications requirements and recommend training courses.



The accident investigation team organization structure follows the incident command system organization structure and philosophy. The structure may be expanded or contracted as the investigation complexity increases or decreases. Mandatory team members retain responsibility and authority for all duties assigned to their position, until the complexity of the investigation requires expansion, whereupon responsibility may be assigned to additional team members.

### **Team Leader**

The team leader receives the delegation of authority and is responsible for all activities to accomplish the objectives of the investigation.

### **Duties and Responsibilities**

- Represents the agency DASHO.

- Contacts the unit that had the accident and determines the status of the investigation in progress and other pertinent information.
- Ensures that "Just-In-Time" team orientation training is accomplished.
- Coordinates an in-briefing with the local affected agency administrator.
- Ensures that accommodations and resources needed by the team are available.
- Coordinates the investigation with the affected agency administrator.
- Develops the strategy for the investigation.
- Approves daily plans.
- Briefs participants in the investigation.
- Coordinates all media releases about the investigation.
- Approves requests for resources and their release from the investigation.
- Conducts meetings.
- Authorizes and coordinates expenditure of appropriated funds to be charged to the Agency in the official accident investigation.
- Arranges for drug testing of personnel, analyses, medical reports and other tests as appropriate.
- Ensures safety of the operations.
- Establishes liaison with and involves appropriate local, state and federal officials.
- Releases physical materials, documents, papers and other information pertinent to the investigation to the appropriate local officials when the accident investigation is complete.
- Distributes any safety messages to the agencies identifying safety measures needed for immediate correction to prevent a similar accident.
- Distributes an initial report of the accident within 24 hours of the team's assembling.
- Prepares, signs and transmits the factual report and management evaluation report to the agency administrator/DASHO.

**Qualifications**

- Currently is a senior management official.

**Required Training**

- Team leadership or equivalent.

- “Just-In-Time” Serious Accident Investigation training, as identified by DOI and bureaus.

**Recommended Training**

- OSHA CFR Part 29- 1960- Basic Program Elements for Federal Employee Occupational Safety and Health Programs and Related Matters.
- I-100, “Introduction to the IC System” self study guide and video.
- “Fire Management Leadership” (national course for agency administrators).

**Safety and Health Manager**

The safety and health manager is a safety and health professional responsible for advising the team leader on occupational safety and health issues pertinent to the investigation.

**Duties and Responsibilities**

- Advises the team leader and other team members on occupational safety and health issues related to the accident.
- Advises and supports the investigation team in the identification of management failures or weaknesses which may have contributed to the accident.
- Advises the team leader in the conduct of the investigation to ensure compliance with OSHA, DOI, and bureau safety and health program requirements.
- Coordinates the availability and procurement of additional safety and health expertise and resources in support of the investigation.
- Signs the factual report and management evaluation report.

**Qualifications**

- Currently a safety and occupational health professional in the GS-018, 803, or 690 classification series. Exceptions to these identified series may occur with USDA Forest Service personnel.
- Experience in serious accident investigation, either as a member of an investigation team or through conduct of independent investigations.

**Required Training**

- Satisfactory completion of serious accident investigation course, such as the OSHA Serious Accident Investigation Course or equivalent.
- “Just-In-Time” Serious Accident Investigation training, as identified by DOI and bureaus.

**Recommended Training**

- Wildland fire experience, with commensurate fire suppression/prescribed fire training.
- Advanced safety and occupational health professional training, such as offered through the DOI Occupational Safety and Health Professional Development Program.
- I-100, “Introduction to the IC System” self study guide and video.

### ***Chief Investigator***

The Chief Investigator is the qualified accident investigation specialist responsible for the direct management of all investigation activities.

#### **Duties and Responsibilities**

- Organizes, staffs and manages the resources and processes of the accident investigation to implement the investigation plan.
- Reviews work and work products of the investigation team for inclusion in the accident investigation package.
- Ensures that the investigation addresses pertinent issues and concerns.
- Coordinates the development of the factual report and the management evaluation report for the accident investigation team within agency guidelines and delivers them to the team leader.
- Reviews information presented by specialists for inclusion in the documentation package.
- Recommends release of personnel assigned to the accident investigation when their services are no longer needed.
- Signs the factual report and management evaluation report.

#### **Qualifications**

- Satisfactorily served as a team member on a serious accident investigation team.

#### **Required Training**

- I-200, "Basic Incident Command System."
- "Just-In-Time" Serious Accident Investigation training, as identified by DOI and bureaus.
- Satisfactorily completed a recognized accident investigation course, such as the OSHA Serious Accident Investigation 80 hour course or equivalent.

#### **Recommended Training**

- Wildland fire management experience, with commensurate fire suppression/management/ prescribed fire training.
- Interagency accident investigation workshop participation.

### ***Technical Specialists***

Technical Specialists possess technical expertise or skills needed to support accident investigation operations. An example of a technical specialist is a **Human Factors Specialist**.

#### **Duties and Responsibilities**

- Report to the chief investigator.

- Apply skills to gather information concerning an accident for the use of an accident investigation team.
- Organize and conduct work directed by the chief investigator.
- Document, sign, and date activities and information developed during the course of the investigation.

**Qualifications**

- Currently possess the qualifications recognized by the specialty represented, e.g., NWCG qualification system, professional credentials.
- Experience in reviews, investigations or other inquiries related to the specialty.

**Required Training**

- "Just-In-Time" Serious Accident Investigation training, as identified by DOI and bureaus.

**Recommended Training**

- Interagency accident investigation workshop participation.
- I-200, "Basic Incident Command System."

***Optional positions:******Documentation Unit Leader***

The Documentation Unit Leader, when assigned, is responsible for maintaining accurate and complete investigation files, providing duplication services, completing the accident investigation file package, ensuring appropriate security of materials, and preparing documents for the investigation team.

**Duties and Responsibilities**

- Organizes and manages the documentation package for the accident investigation formal record.
- Prepares, signs, and delivers the draft factual report and management evaluation report to the chief investigator.
- Submits the accident investigation documentation package to the chief investigator.
- Coordinates with investigation personnel to obtain documentation required.
- Establishes a system to securely maintain documentation of written, photographic, physical and other forms of information and property so as to maintain documentation package integrity.
- Provides information to members of the investigation team for their use in the investigation.

**Qualifications**

- Is or has been a documentation unit leader.

- Served as a trainee documentation unit leader on an accident investigation.

**Required Training**

- I-100, "Introduction to the IC System" self study guide and video.
- "Just-In-Time" Serious Accident Investigation training, as identified by DOI and bureaus.

**Recommended Training**

- I-200, "Basic Incident Command System."

**Fire Investigations**

The field manager has the overall program responsibility (investigation through collection) for the wildland fire trespass program. The field manager is responsible for all fire trespass activities on public lands regardless of who provides the protection. The FMO at the field office has operational responsibility for initiating fire cause determination. If there is clearly insufficient cause determination information to proceed, the FMO completes documentation and recommends case disposition to the field manager (see H-9238-1, *Fire Trespass*). If there is sufficient cause determination information to merit further investigation, the FMO recommends to the field manager that the case be assigned to law enforcement for conducting the investigation. The law enforcement investigation report is submitted to the FMO. The FMO and the law enforcement officer are responsible to meet with the field manager to review the investigative report and other documents. Based on the strength of the case, the field manager determines whether to proceed or to close the case. The determination must be made on facts and circumstances, not on cost or ability to pay. This decision to continue or close the case must be documented and filed in the fire folder along with the official copy of the fire report (DI-1202).



## 15 - Administration

### Policy

BLM has adopted the National Wildfire Coordinating Group (NWCG) Interagency *Incident Business Management Handbook* as the official procedures for handling administrative matters relating to fire management. Periodic supplements will be issued based on BLM needs and/or changes agreed on by the interagency community making up NWCG. This handbook replaced and updated *BLM Manual Section 1111*.

### Purpose

Since the uniform application of interagency policies and guidelines is essential, appropriate procedures in the *Interagency Incident Business Management Handbook* (NWCG Hbk2) should be followed. The BLM Manual will provide a bridge between Manual Sections and the *Interagency Incident Business Management Handbook*, so that continuity of the BLM Manual System is maintained and all additions, changes and supplements are filed in a uniform manner. Field offices may supplement the Handbook (see Manual 1221) to provide additional clarification or information as long as policy or conceptual data is not changed.

### Objectives

The objectives are to assure that fire operations include:

- Maintaining proper finance, property, procurement, and personnel records and forms in a consistent manner.
- Properly classifying emergency fire personnel, and paying such personnel according to classification.
- Applying specific regulations applicable to pay, leave, travel, hazard, pay, etc., in a uniform manner.
- Acquiring necessary equipment and supplies from appropriate sources in accordance with applicable procurement regulations.
- Maintaining adequate property records and accountability procedures.

## Responsibility

**Agency Administrator** The agency administrator provides fire business management information, support to the incident commander, and oversees the fire business management activities and their compliance with BLM policy.

**Incident Commander** The incident commander (IC) establishes and maintains business management practices for activities related to wildland fire management. The IC and assigned staff are responsible for carrying out business management activities as identified in the *Interagency Incident Business Management Handbook*.

## Hazardous Fuel Reduction Operations

### Subactivity 2823

**Fund Code Guidance** This subactivity is commonly referred to as the fuels management program. Congress intended this funding to focus on implementation. The fuels management subactivity requires the use of a project number with all expenditures. The subactivity has been organized into two program elements (reference *1999 Fund Coding Handbook*). Program element "00" is used with all costs associated with a specific project. Program element "01" is used with costs associated with general fuels program activities not tied to a specific project, such as training and program management, and involves the use of "YY" as the standard project number. The term "program support" is commonly used to identify activities associated with program element "01."

#### **Uses of Funds:**

- Includes the costs of implementing prescribed fire, mechanical, and chemical treatments to reduce hazardous fuels and to restore fire to its natural role in ecosystems.
- Includes mechanical and chemical treatments necessary to alter fuels as a precursor to the introduction of fire in its natural role.
- Includes costs of construction and maintenance of fuel breaks that are part of a scientifically planned, NEPA compliant network of strategically located linear connected areas where fuel characteristics are modified to break up continuity of hazardous fuels. To develop a network of connected areas, cooperative agreements with partners may be necessary.
- Includes funding of prescribed fire, mechanical and chemical treatments to remove undesirable vegetation as the first step in ecosystem restoration, *but excludes* subsequent mechanical and chemical treatments, plantings, and seedings to establish the desired vegetation.

- Excludes treatment of fuels generated in conjunction with commodity production activities, such as timber stand improvement and slash.
- Excludes type conversions where the principal purpose is for commodity production.
- Excludes annual maintenance of landscaping, transportation corridors, and right-of-ways.

***Labor Costs:***

- Includes regular planned salaries for all fuels management permanent full time personnel who are dedicated for the full year to non-commodity production fuels management activities. Includes shared positions with other agencies. Permanent full time fuels or forest management personnel who are also responsible for treatment of fuels associated with commodity production must pro-rate their salary.
- Includes salaries for career seasonal and seasonal personnel hired specifically for fuels management project implementation.
- Includes salary for hours worked by qualified non-fuels management personnel responsible for developing project burn plan(s). Does not include salary for non-fuels management personnel performing (fire or non-fire) program-wide planning activities which address general fuels management activities. For example, a range specialist who has been integrally involved in the prescribed fire program, is qualified, and has shared or been the lead in developing burn plans and will continue to do so regardless of whether they benefit the range management program. The employee's salary for the hours worked can be charged to the project.
- Includes salaries for the hours actually worked on implementation for all non-fuels management personnel (fire or non-fire) that are a formal part of the unit's prescribed burn implementation team. For example, a wildlife biologist is a qualified ignition specialist and is used on all prescribed burns on and off the district land regardless of wildlife program benefits. The employee's salary for the hours worked implementing the project can be charged to the project.
- Includes costs of project development and clearances for permanent full time support personnel (such as archeologist, environmental compliance specialist, and T&E biologist) that do not have regular planned base salaries and are funded on a project-by-project basis. Funding is only for the hours worked on a project when their discipline is not a benefitting activity. Also includes the costs for these same activities if they are performed by qualified temporary hires and contracted specialists. For example, an archeologist, if funded on a project-by-project basis, or a contract archeologist, can charge salary for the time worked on the project. Funding

should only be for the level of work needed to perform the basic task(s) meeting compliance requirements commensurate with the anticipated disturbance.

- Includes overtime and premium pay for all personnel, fire and non-fire, permanent, career seasonal or seasonal, while actually involved in project implementation.
- Excludes regular planned salaries for all fire and non-fire permanent full time personnel, other than permanent full time fuels management personnel and forest management personnel that also have responsibility for treatment of non commodity fuels, or previously described have lead roles in burn plan development or are formal members of the prescribed fire team. Fuels management funds (2823) for non-fuels personnel performing covered roles as previously described are not spread to the respective disciplines to be used as base funding. These employees only charge to the specific project as the work is performed. Career seasonal and seasonal personnel hired under another fire subactivity or a non fire appropriation may not charge their base salary to the hazardous fuel reduction operations subactivity. However, appointments of career seasonal and seasonal employees may be extended under the hazardous fuel reduction operations authority when dedicated to fuels project development and implementation, regardless of the original purpose of hire. Seasonals cannot be extended beyond the annual 1039 hour limitation.
- Excludes all costs associated with general land management planning such as ecosystem plans, land management plans (RMPs), and program management plans (e.g., AMPs, HMPs, and FMPs). Program support fuels management personnel assigned to general land management planning activities would continue to code labor costs to their base-eight (2823) subactivity. For example, a fire manager working on an RMP or FMP would code all of his/her regular planned salary (base-eight) to the 2810 subactivity, even if the work addresses fuels management, such as prescribed fire. A forester working on a RMP or an activity management plan would code to his/her regular planned subactivity for all labor costs, even if he/she addresses fire and fuels to consider ecological disturbances.
- Excludes all costs of managerial oversight which is normally funded through general administrative or non-fire program management funds. Fire program managers, such as state, district, and field office FMOs, should code to the preparedness activity which covers general fire program management and readiness.

***Travel and Per Diem Costs:***

- Includes travel and per diem for all personnel involved with project implementation activities. These costs are part of project implementation

and coding would use the program element of "00" along with the specific project number.

- Includes travel and per diem for all approved personnel associated with developing, managing, and attending fuels management training and workshops as well as NWCG certified prescribed fire curriculum. These costs are part of office fuels management program support and would use the program element of "01" and the "YY99" project number.

***Administrative Support Costs:***

- Includes administrative support cost, but can only be assessed at the organization level directly responsible for implementing fuels management activities. This fee cannot exceed five percent of the field office's target allocation. Subactivity 0777 (general purpose, non-program specific support costs) cannot be assessed to the fuels management program.

***Aircraft Costs:***

- Includes flight time associated with hours actually worked on a project. Usually call-when-needed aircraft are more economical for fuels management activities than extending preparedness (2810) contract aircraft and paying for both the availability and flight time. There may be exceptions, so an analysis should be performed to determine the most economical method before extending the length of an aircraft contract.

***Public Awareness Costs:***

- Includes the cost of public awareness activities for specific projects.
- Excludes cost associated with general fire education/awareness activities and general information about the use of fire or other generic fuels management activities.

***Monitoring and Analysis Costs:***

- Includes costs for establishing plots for monitoring fire behavior, fuel moisture, and direct effects of the fire treatment, and immediate post-treatment monitoring of these plots. Long-term effects monitoring and analysis should be funded by the activity responsible for management of the vegetation.

***Contracting:***

- Includes all costs associated with contracting. Contracts can be used for all, or portions of, project development and implementation.

***Equipment Purchases:***

- Includes purchase of capitalized equipment needed for the average annual workload that cannot be economically contracted, leased, or rented. Capitalized equipment is identified as acquisition costs equal to or greater than \$10,000. Before the standard procurement process is initiated, the proposed purchase must be supported by an analysis of cost alternatives and submitted with a request to authorize the purchase to the state FMO. Purchases should always consider cost sharing with other activities and/or statewide sharing. Heavy equipment, including vehicles, tractors, and other mechanized equipment, should not be purchased. The purchase price of this category of items can be misleading as it only represents a portion of the total long term indirect costs, such as maintenance, operations, training, storage, and liability.
- Includes the cost of replacing equipment destroyed while being used on a fuels management project and will require a board of survey action.

***Miscellaneous Costs:***

- Includes costs of moving fuels management personnel (permanent change of station (PCS) moves).
- Includes costs of procuring supplies and office equipment for permanent fuels management personnel.
- Includes costs of all supplies directly related with project development and implementation.
- Includes leave surcharge, which is covered at the national level.

***Interagency Fuels Management Activities:***

The process the BLM follows for interagency fuels management activities is similar to the process BLM follows for assistance on wildland fires. The BLM fully endorses the concept of interagency support and recognizes that well planned and managed interagency activities should benefit all parties. Unlike emergency suppression activities, no office is obligated to provide fuels management assistance if it conflicts with workload priorities and jeopardizes achieving performance measures.

1) All BLM interagency fuels management activities (prescribed fire, mechanical, and chemical) involving 2823 funding must have the following:

- **An assigned fuels management project number that is unique to that project**, not one number for all interagency activities or one number for each agency. Use a project number from the list of numbers assigned to each bureau field office. The list of project numbers assigned to offices can be

found in the Appendix of the Handbook providing guidance on how to complete a wildland fire. The project number enables financial tracking and the documentation of the project in the fire reporting system.

- **Documentation of each project in the Bureau's Fire Reporting System.**  
The local BLM office that assigns the fuels project number is responsible for filing the fire report for the project as long as that assistance number is used by any BLM office. The assistance fire report is easy to complete and requires no specific knowledge of the project or BLM's costs.

2) The 1999 amendment to the master "Interagency Agreement for Fire Management," between the BLM, BIA, FWS, NPS and USFS, addresses several items including reimbursement for fuels management activities. Section V, G, item 7, states as follows:

"The Interior agencies have agreed to not reimburse for services rendered to one another under the Hazardous Fuel Reduction Operations program. Potential deficiencies in individual agency's Operations accounts due to assistance rendered will be covered by funding transfers following normal department protocols. The Interior bureaus and the Forest Service also agree to not reimburse each other for Hazardous Fuel Reduction Operations assistance except for extraordinary situations in which there is no opportunity for reciprocal services to achieve performance targets. Reimbursement is acceptable only when the amount to be reimbursed represents a significant portion (greater than ten percent) of the office's allocation."

The phrase "ten percent of the office's allocation" only applies to the Forest Service since the Interior agencies, through the "Master Interagency Agreement" amendment and previous documents, have already agreed to not reimburse for any services regardless of cost. The reimbursement phrase refers to that portion of work beyond what has been off-set through reciprocal services. It should also be noted that national caches run by the Forest Service have no allocated fuels funds. Therefore, they may choose to bill for all fuels management orders as they currently can for non-suppression activities. In keeping with the intent of minimizing administrative costs, BLM offices should work with the geographic area's national cache. If managed by the Forest Service, see if an arrangement can be made, such as picking up the order as opposed to having it shipped, to eliminate billing. In general, the most efficient method of obtaining supplies for fuels activities is to work directly with our local interagency neighbors.

3) When another federal agency requests BLM's assistance on a fuels management project, the request should go to the local BLM field office. The office assigns a fuels management project number and that will be the only BLM number issued for that project regardless of where the BLM assistance is obtained. If the local BLM office provides all of the requested assistance, all

activities are handled strictly between the two interagency neighbors. If only some, or no, local BLM assistance can be provided, it is the responsibility of the requesting agency to decide if they want to continue to seek assistance from more distant sources. If BLM assistance is obtained from other sources, usually through the normal resource ordering process (similar to wildland fires), the original BLM project number assigned is the only one used. The BLM's fuels project number is only used to cover BLM costs. Each BLM office responding uses their own office designation code (such as OR-010) with the 2823 subactivity code, the program element of "00," and the assigned project number given by the local BLM office. All costs of interagency assistance will not be considered part of any office's fuels management allocation. By having a unique project number and the fire report, these costs can be tracked at the national level. Budget adjustments among the agencies can be made if necessary. For example, a field office has been allocated \$100,000 fuels funds (2823) to meet their program support and project implementation costs to accomplish that year's planned fuels management workload. If the office uses all of this allocation on their projects, plus an additional \$8,000 for documented interagency assistance, they will not be considered over expended for the additional \$8,000. Because of the complexity that interagency assistance introduces into fund management, every office must promptly and accurately document their expenditures and activities.

For those infrequent situations when an interagency partner does not request BLM for local services and only wants to get radios from the national cache (which BLM manages) or supplies from the Great Basin national cache (which BLM manages), a unique fuels management number for each agency has been established at the National Interagency Coordination Center (NICC). This number will only be used by NICC for national cache items when no BLM field office number has been assigned.

**4)** Interagency assistance activities should not be used to expand BLM's workforce numbers or extend the length of BLM's workforce season more than one full pay period. The BLM is still accountable to the 1,039 hour length-of-season limitation on seasonal employees. Assistance workloads must not be part of any consideration to convert seasonals to career seasonal (WAEs) or career seasonals to permanent full time. Interagency assistance will also not be considered when assessing the local workload for the purpose of establishing a permanent full time fuels management position.



## Procurement

Procedures for procurement operations in a fire emergency are intended to assure that support of an incident can be accomplished in a cost efficient and timely manner. The *Interagency Incident Business Management Handbook*—Chapter 20, Procurement, provides procedures to be used on a large incident.

### Policy

#### ***Planned Procurement***

A unit should pre-plan, determine vendors, and when possible, procure supplies and services for an emergency incident. Planned procurement should follow accepted methods of advertisement, competition, and selection. Meal agreements, aircraft (OAS), equipment rentals, memoranda of understanding or agreements, incident base locations, motel accommodations, and vendor provided services could be purchased. Blanket purchase agreements are being replaced by credit cards, but in some instances may still be viable. Inclusion of contracting officers/procurement agents in the preplanning phase is essential. It is also recommended that units in a geographic area work together with vendors and establish one list for all agencies to use, particularly as it relates to equipment rentals and negotiated prices for goods and services. Better rates may be obtained and prices will be consistent within the area. The more that is accomplished before an incident occurs, the better the procurement for the emergency. Incident command teams will integrate quickly with the local unit and even the small local incidents benefit from preplanning.

#### **Emergency Procurement**

Although most initial attack and smaller incidents don't require extensive immediate procurement, unplanned situations occur that require emergency procurement. Some units have contracting officers and procurement agents who are capable of rapid support using their delegated authority.

- Some delegations of authority should be in place to allow emergency purchases using imprest, blanket purchase authorizations, or credit card with expanded limitations at appropriate vendors. The delegation must be issued by a warranted contracting officer or warranted procurement agent.
- A local unit should request assistance through the resource order process up to and including incident management teams and buying teams.
- Utilize cooperators as much as possible.
- Recognize procurement limitations:
  - ♦ No capitalized equipment purchases.
  - ♦ \$25,000 single purchase with some exemptions allowable.
  - ♦ Credit card authorized.

- ♦ Imprest purchase limits and cash on hand.

## Injury Compensation

### Policy

BLM policy provides for prompt medical attention to injured or ill employees. On a large incident the injured or ill employee may be from another agency. All forms and documentation needed to protect the employees rights must be completed and sent to appropriate employing offices. It is the responsibility of the employee, supervisor, incident commander, and the agency administrator to assure policy and procedure are followed.

### Federal Employees

At a minimum, a CA-1 is filled out by the employee and supervisor for any injury. If medical treatment beyond first aid or agency provided medical care (APMC) is required, a CA-16 is also required. The employee's home unit should receive the CA-1 and a copy of the CA-16, if available from the care provider.

### Non-Federal Employees

Provide for the appropriate level of medical care depending on the situation. Contact an agency representative (if available) or the employee's home unit to determine what forms are required. Use CA-1 and CA-16 if necessary.

### Agency Provided Medical Care

When available through a licensed physician or medical center, APMC is an option for initial treatment of injuries. Since OWPC bills the agency for all medical costs plus administrative charges, APMC may be less expensive and is directly billable to the activity during which the injury occurred. On a large incident APMC can be provided in base camp or the services can be arranged at an alternative facility.

## EFF/AD Hiring

### Policy

The authority to hire emergency firefighters/administratively determined (EFF/AD) is updated each year with an instruction memo and a pay plan as an exhibit to the *Interagency Incident Business Management Handbook*. The conditions for hiring are clearly stated. A local unit or an incident management team may hire additional personnel for an ongoing emergency incident to include rehabilitation. A local unit may also hire additional personnel to deal with an anticipated increase in fire activity, replace suppression personnel currently assigned to other fires, to hire personnel for fire use hazardous fuel reduction activities, and to train fire suppression personnel for up to 80 hours.

## **Pay Plan**

The pay plan is based on a regional basis for AD-1 to 4 and sets upper limits on AD-5, which is negotiated for specific jobs at the local level. All time as an EFF/AD is straight time with no premium pay authorized. This type of employment is not eligible for unemployment benefits at the conclusion of the employment period. No deductions are made (except commissary or lost property), but the earnings are taxable under federal and state tax laws.

**Effective January 1, 1999, the Internal Revenue Service requires that federal and state income tax be withheld from emergency firefighter wages. In the past, no federal income tax was withheld.**

## **Use of Pay Plan for Hazardous Fuel Reduction**

The AD pay plan may be used to hire personnel for fire use hazardous fuel reduction projects to provide temporary support due to the unpredictable nature of fire use hazardous fuel reduction activities. The pay plan may not be used to circumvent normal hiring and contracting procedures. The term of hire is restricted to no greater than the period beginning 24 hours prior to planned ignition and extending through 24 hours after the perimeter is secured. The receiving (host) agency is responsible for hiring and paying under the AD pay plan for fire use hazardous fuel reduction.

## **Injuries**

An employee in EFF/AD status who is injured on the job will be treated utilizing CA-1 and CA-16 procedures. Once the injury is treated the employee may be released from duty with no Continuation of Pay (COP). Medical treatment beyond the initial treatment is continued under OWCP procedures.

# **Contracts**

## **Policy**

Use of contractors for support of fire suppression operations is appropriate and in many cases the preferred method of obtaining goods or services. Fire suppression contracts with other agencies are utilized when it is not practical nor economically feasible for BLM to provide its own fire protection. Fire suppression contractors must meet BLM minimum standards for fire equipment, personnel qualifications and training.

## **Types of Contracts**

The best example of pre-arranged contracts are those for aircraft as provided through Office of Aircraft Services. Another common arrangement is a suppression contract with a state or local government agency for fire protection services on public lands. BLM may also contract to provide services to another

agency for suppression activities. Others include meals, lodging, fuel, equipment, and service contracts.

## **Buying Unit Teams**

### **Policy**

The use of buying unit teams is encouraged to support large fire incidents which are managed by Type 1 or Type 2 incident management teams.

### **Team Composition**

A buying unit team can be set up in a local office or pre-planned as part of a mobilization plan. The team members are normally procurement personnel with warranted contracting authority. Two or three personnel familiar with local vendors and procurement procedures work at the field office level and support an incident at a remote location. An incident management team may be managing the fire or other type of emergency and the buying unit team would handle orders.

## **Incident Business Advisor**

The incident business advisor (IBA) replaces the comptroller with the focus being a liaison and advisor to the agency administrator (AA), working directly for the AA. The IBA is recognized as an interagency position. The IBA serves as a "bridge" to the AA, incident management team and other incident support functions. This "bridge" provides a communication flow to assigned resources with the focus being successful incident business management practices.

Incident business management practices on a unit are a critical element of incident operations. IBA utilization will facilitate the unit's ability to implement sound incident business practices, such as cost effectiveness and adequate financial; documentation. Agency administrators should determine if they have qualified resources available to fulfill the IBA position. Guidelines for determining the need for an IBA have been established.

## **Cache Management**

The BLM manages two National Interagency Support Caches (NISC), located at NIFC in Boise, Idaho and at AFS in Fairbanks, Alaska. The BLM also serves as an interagency partner in several local area interagency support caches, and operates numerous single agency initial action caches. All caches under BLM administration will maintain established stocking levels, receive and process orders from participating agencies, and will follow ordering and fire replenishment procedures as outlined by the national and geographic area cache management plans and mobilization guides.

**National Interagency Support Caches** The caches located at NIFC and AFS are two of eleven designated national caches within the National Fire Equipment System (NFES). Each of these caches provides incident support in the form of equipment and supplies to units within their respective geographic areas: the cache at NIFC services the Great Basin geographic area and the cache at AFS services the Alaska geographic area. The only services provided by these caches outside of their geographic areas is for incident support that is requested through the dispatch coordination channels, and for direct publications management orders to the Great Basin Cache at NIFC.

**Local Interagency Support Caches** These caches directly support more than one agency and, generally, cover more than one administrative unit. They will maintain stocking levels to meet the identified needs of the multiple agencies for whom service is provided. The BLM participates in management of this level of cache support in Billings, Montana; Idaho Falls, Idaho; and Salt Lake City, Utah.

**Initial Response Caches** Numerous caches of this level are maintained by the BLM. These caches will establish and maintain stocking levels to meet the initial response needs of the local unit(s).

### **Inventory Management**

**System Implementation** Each BLM fire cache, regardless of size, should initiate and maintain a cache inventory management system. The BLM's management system provides a check out/return concept that incorporates a "debit/crediting" for all items leaving the cache. This system is strictly followed in the two BLM NISCs. Inventory management processes should be implemented for all local interagency support and initial action caches using established categories of equipment and supplies.

**Reporting Requirements** By April 1 of each year, all local interagency support and initial action caches will submit to their servicing NISC, available quantities of the following items. All items reported will conform to refurbishment standards set forth in NFES 2249, *Fire Equipment Storage and Refurbishment Standards*.

NFES#	Description	QTY	Unit of Issue
<b>Fireline Tools</b>			
0146	Pulaski, w/plastic sheath	_____	EA
0159	Saw, Chain, 16" to 24" bar	_____	EA
0340	Kit, Chain saw	_____	KT
0171	Shovel, w/plastic sheath, size #1	_____	EA
<b>Water Handling</b>			
0966	Hose, CSJRL, 1" NPSH x 100'	_____	LG
0967	Hose, CSJRL, 1½" NH x 100'	_____	LG
1016	Hose, Garden collapsible synthetic 5/8" x 50'	_____	LG
1238	Hose, synthetic, lined 1" NPSH x 100'	_____	LG
1239	Hose, synthetic, lined 1½" NH x 100'	_____	LG
0870	Kit, pump, portable	_____	KT
0670	Kit, pump, portable lightweight	_____	KT
0024	Nozzle, twin tip comb. 1" NPSH-F Forester	_____	EA
1081	Nozzle, combination, barrel, 1" NPSH	_____	EA
1082	Nozzle, combination, barrel, 1½" NH	_____	EA
1149	Pump, backpack outfit	_____	EA
0148	Pump, fire portable, (Mark III)	_____	EA
0124	Pump, lightweight, 45 GPM	_____	EA
0010	Reducer, hose, 1½" NH-F to 1" NPSH-M	_____	EA
0661	Tank, folding, 1000 GL capacity	_____	EA
0664	Tank, folding, 1500 GL capacity	_____	EA
0568	Tank, collapsible, 3000 GL capacity	_____	EA
6030	Tank, collapsible, 4800 GL capacity	_____	EA
6031	Tank, collapsible, 6000 GL capacity	_____	EA
0731	Tee, hoseline, w/cap & chain, 1½" NH	_____	EA
0230	Tee, hoseline, w/valve, 1½" NH	_____	EA
0231	Valve, wye, gated, 1½" NH	_____	EA

<b>PPE &amp; Safety</b>		_____	
0169	Shelter, fire, w/case	_____	EA
<b>Miscellaneous</b>			
0022	Bag, sleeping, cloth, washable 3 lb fill	_____	EA
1309	Longline kit, w/remote hook	_____	KT

### **Accountability**

Fire loss/use rate is defined as all property and supplies lost, damaged or consumed on an incident. It is reported as a percentage that is calculated in dollars of items issued compared to items returned. The reasonable anticipated fire loss/use rate for all items issued to an incident averages 25 to 30 percent.

All items stocked in BLM fire caches will be categorized for return (loss tolerance/use rate) and accountability purposes.

**Trackable Items** Include items that a cache may track due to dollar value, sensitive property classification, limited quantities available, or other criteria set by each geographic area cache. Items that are considered trackable are usually engraved or tagged with a cache identification number. These items must be returned to the issuing fire cache at the end of the incident use, or documentation must be provided to the issuing cache in the form of a Property Loss/Damage Report (OF-289). All trackable items are also considered durable. 100 percent accountability is expected on trackable items.

**Durable Goods** Include cache items considered to have a useful life expectancy greater than one incident. High percentages of return for these items are expected. These items are not specifically cache identified/ tagged/engraved.

Acceptable loss tolerance/use rates for the following durable goods have been established:

10% loss tolerance/use rate: water handling accessories, helicopter accessories, tents, and camp items such as heaters, lights, lanterns, tables, and chairs.

20% loss tolerance/use rate: hose, tools, backpack pumps, sleeping bags, pads, and cots.

30% loss tolerance/use rate: personal protective equipment.

**Consumable Supplies** Includes items normally expected to be consumed during incident use. Consumable items returned in serviceable

condition are credited to the incident. No loss tolerance/use rate percentage is established. Examples of consumable items are: batteries, plastic canteens, cubitainers, forms, MREs, fusees, hot food containers, petroleum products, and medical supplies.

### ***Fire Loss Tolerance Reporting for Type 1 and 2 Incidents***

In order to help managers keep incident-related equipment and supply loss to a minimum, incident management teams are required to maintain accountability and tracking of these items. Guidelines and procedures to assist with this accountability are provided in Chapter 30 of the Interagency Incident Business Management Handbook. To further facilitate these procedures and provide oversight, a fire loss report has been developed that provides detailed information regarding consumable and durable item use. This report has been accepted by NWCG for all wildland fire agencies and will be compiled for all Type 1 and Type 2 incidents.

These reports are compiled by the geographic area National Fire Equipment System cache servicing the particular incident. Reports will then be forwarded to the responsible field office, with a copy to the state FMO, within 60 days of the close of the incident. To meet these time limits, several steps must be followed to facilitate complete data resulting in accurate reports:

- At the close of each incident, all property must be returned to the servicing NFES cache. If accountable property has been destroyed or lost, appropriate documentation must be provided to the cache for replacement and updating property records.
- All property purchased with emergency fire funds for an incident must be returned to the NFES cache system.
- All unused and/or durable NFES items must be returned to the servicing NFES cache within 30 days of control of the incident.

Agency administrators/fire management officers must review the fire loss report and recommend appropriate follow-up action if losses are excessive. Those actions and recommendations should be documented and filed in the final incident records.

***Incident Supply and Equipment Return Procedures*** Supplies and equipment ordered with suppression funds will be returned to the ordering unit at the end of the incident and dispersed in one of three ways:

- Items meeting NFES standards will be returned to the local or geographic area cache for re-use within the fire supply system.
- Items **not** meeting the prescribed NFES standards will either be purchased with project funds by the local unit if the items are needed for program use, or



- Will be delivered to the unit's excess property program for disbursement.

**Cache Return and Restock Procedures** All returns for credit and restock of caches to specific incident charges **should** be made within 30 days after the close of the incident. If that time limit cannot be met, it is **required** that returns and restock be made during the same calendar year as items were issued. All returns should be either tagged with appropriate incident number, accompanied by an Interagency Waybill identifying the appropriate incident number, or accompanied by issue documents to ensure proper account credit is given. Any items returned after the calendar year of issue will be returned to multiple-fire charges, unless specific incident charge documentation (issues) can be provided with the return.

## Mobile Fire Equipment Policy

The BLM policy is to maintain each piece of mobile fire equipment in a condition consistent with the work it is expected to perform. This shall be accomplished through the intelligent application of a uniform preventive maintenance program and in accordance with all BLM fiscal requirements. Repairs shall be made and parts replaced as necessary to keep the equipment functional, with priority given to those items contributing to safety. Mobile fire equipment shall not be altered or modified without BLM national fire operations committee approval.

Regular inspections of all mobile fire equipment shall be made as outlined in the Preventive Maintenance Procedure and Record. Accurate records will record maintenance and repairs on all mobile fire equipment. Whenever possible, major repairs should be scheduled during the time of least expected activity for each type (e.g., fire apparatus during winter period; construction equipment during summer), thus reducing the possibility of breakdown during its active period. Recurring fire equipment problems/failures should be identified to the state fire equipment representative. This information will be forwarded to the national Office of Fire and Aviation for review and staffing of possible solution.

## Fire Equipment Management

### Introduction

This section contains specific guidance on activities, standards, and procedures in the management of the BLM's fire equipment. Also refer to the Bureau Manual Handbook H-9216-1, *Fire Equipment and Supply Management Handbook*.

The BLM fire equipment program designs, develops, and acquires specialized equipment, cabs, chassis, utility bodies, and pump packages to meet the BLM's fire use and suppression requirements. Design is accomplished through the analysis of performance needs, survey of new technology, and the development

of test models and prototype units. Acquisition of these components is done through a combination of contracting, remanufacturing of existing units, and in-house assembly. The BLM operates a vehicle program balancing state-of-the-art technology with overall cost efficiency to provide maximum safety for personnel while effectively meeting suppression needs.

### **Fire Equipment Committees**

**State/Geographic Area Fire Equipment Committee** Each state/geographic area maintains a fire equipment committee which, at a minimum, does the following:

- Establishes, coordinates, and standardizes internal (state) fire equipment management practices.
- Identifies equipment needs and problems for national resolution.
- Provides a state focal point who can knowledgeably speak for the state on national and local activities.

**Fire Equipment Task Group** This group consists of the state equipment committee chairs (or designated representatives), one national fire management staff, national equipment development lead and the National Business Center (BC) equipment management specialist. Meeting frequency is based on need, but meetings are typically scheduled twice a year. Agenda topics are solicited from the national office and states through the National Operations Committee. Formal meeting minutes containing recommendations are distributed for review, before adoption. The group focuses on the full fire equipment spectrum.

**The NWCG Fire Equipment Working Team (FEWT)** This group is also known as the National Interagency Fire Equipment Committee. The BLM has one term position on the FEWT; several employees may be assigned to task forces and work groups. The working team meets twice a year and produces official minutes for the NWCG. The BLM's representative is responsible for timely distribution of these minutes and soliciting BLM topics to bring to the FEWT meetings.

### **Standards and Specifications**

The BLM's fire engine program strives for standardization for reasons of economy and efficiency. Standardization produces state-of-the-art equipment, effectively meeting user needs at the lowest possible cost, and with the least impact on the BLM work force.

**Management of Standards** Bureau specifications and standards are maintained by the Equipment Development Unit at NIFC. Equipment standards

and standard options are managed under the “sealed pattern” concept; changes may only be made once a year, through a formal, documented process. Minor changes to blueprints and specifications are made only with the concurrence of the National Operations Committee. Major changes may be addressed only through the engine development process. Procurement of nonstandard equipment with fire management funds, when standards exist, must have prior written approval by the Director, Office of Fire and Aviation.

***Classes of Standard Units*** The BLM has established standards for engines and pump units. These standards are for light engines, heavy engines, water tenders, and slip-ons. Not all of the cab and chassis carrying fire packages are Department of the Interior vehicles; several offices also use GSA vehicles. The BLM’s fire vehicle program standards also apply to GSA vehicles.

***Funding Accessories and Upgrades*** States and Field Offices are responsible for procuring and funding all accessories and upgrades added to a BLM fire vehicle that are not part of the standard as defined in detail in the “sealed pattern” for the year the equipment was assembled. If the engine did not have the item on it when received from the Equipment Development Unit, that item is considered an accessory. Charges for accessories (e.g., special painting, supplemental lighting, warning devices, winches) and the maintenance of these items cannot be made against the WCF. They are totally the responsibility of the local unit.

***Property Numbers*** The Equipment Development Unit assigns property numbers to completed pump packages. Packages built at a local unit have property numbers assigned by that office. The National Business Center assigns an Interior license plate to the cab and chassis. The number on that plate is the property number by which the cab and chassis will be identified, in both the APPS and the AFMS. A credit card is issued when the vehicle has reached its assigned destination and on receipt of the transfer document. This document shows the license number of the vehicle and the property number of the pump package with complete assignment information on both items.

The heavy engine, water tender, or special purpose vehicle pump package is assigned a single property number. The property number covers all components comprising the pump package, the cab/chassis, and the utility body.

The light engine pump package is considered to be the slip-on type and, therefore, is assigned a separate property number covering all components comprising the slip-on package. The utility body and cab/chassis are considered a unit and have a property number separate from the slip-on pump package.

### **Mid-Cycle Maintenance**

Field offices perform the maintenance on their fire vehicles. Some wear and tear cannot be resolved through a regular maintenance schedule. To ensure the vehicle's integrity, reliability, and cosmetic value, it is often necessary to perform special maintenance at the mid-cycle point. Mid-cycle is determined as the halfway point in the WCF replacement cycle. All mid-cycle maintenance is chargeable to the WCF and must have written approval in advance by the state director. All major damage, not from normal use, is chargeable to the appropriate activities, not WCF. The cost of mid-cycle activities becomes part of the use rate, and performance is the responsibility of the field office. The special mid-cycle maintenance is limited to the following:

***Tank Maintenance*** Tops removed, (If steel) tank inspected and cleaned; baffles checked and rewelded, if necessary; rust damage repaired, if needed.

#### ***Cosmetics***

- Painting – Is done at mid-cycle or if major damage has occurred. Repainting is covered by WCF only at mid-life cycle, where normal deterioration has occurred.
- Body work – Is limited to damage repair and does not include package or equipment upgrades.
- Pumping system – Does not include upgrades to newer models, but does include rebuilding and repainting, when necessary.
- Hose reels – Rewind motors and rebuild hose swivels; model/styles remain original.

### **Valid/Invalid Expenditures of WCF Funds**

***Add-Ons and Accessories*** All equipment added to a fire engine vehicle after delivery such as light bars, tools, radios, and winches are considered "add-on" items and are not funded through WCF. The cost of fire vehicle or fire package modifications, including the replacement/modification of equipment provided with the vehicle on delivery (such as bumpers), is not funded through the WCF, unless the equipment is in need of replacement due to damage, wear, or defect. All accidents must be charged to benefitting activity.

***Vehicle Repairs, Maintenance*** The cost of all vehicle repairs and maintenance may be charged to WCF. Exceptions include the cost of replacement or repair of "add-on" items and accessories, and equipment damage other than normal use.

**Mid-Cycle Maintenance** Mid-cycle is required to ensure a fire vehicle's reliability, integrity, and cosmetic value. Special maintenance items may be performed halfway into the WCF life cycle. This maintenance is an appropriate WCF charge (see Mid-Cycle Maintenance for details).

**Travel on WCF Funds** Travel using the WCF must be pre-authorized by the WCF Manager and is normally allowed only to NIFC and National Business Center personnel serving as contracting officers, contracting officer representatives, and project inspectors on fire vehicle related contracts, and for fire vehicle delivery by NIFC personnel.

### **Fixed Ownership Rates (FORs)**

These are the annual fees charged monthly against a fire vehicle currently in service that accumulate over the life of a vehicle, which are then applied toward the purchase of the eventual replacement vehicle. The FORs are adjusted annually by WCF to reflect changes in replacement cost due to inflation or specification changes. Sales of outgoing fire vehicles provide approximately 20% of the value of the replacement vehicle.

Slip-on pump packages on light engines are included in the rates charged for class 663 vehicles. Slip-on pump packages not on WCF class 663 vehicles (i.e., GSA vehicles) are charged a separate rate which is collected at the end of each fiscal year. Incomplete or improper disposal of outgoing (replaced) fire engine equipment results in continued charges of FORs until such time as disposal is completed.

### **Use Rate Determination**

Use rates are independent of the FOR. The use rate is a yearly adjusted rate that is equal to the average cost for the use and maintenance of vehicles in that class the preceding year. The use-rate figure may vary significantly from year to year, particularly in those vehicle classes with a low number of vehicles which are more sensitive to large maintenance or repair charges on a single vehicle.

### **Property Classifications**

The following vehicle classes comprise the majority of fire engine equipment currently in service.

- 421022 = Slip-on pump package to 300 gallons
- 421042 = Slip-on pump packages from 300–2000 gallons
- 421062 = Slip-on pump packages over 2000 gallons
- 644 = Crew Carrier
- 660 = Light helitack support vehicle

- 662 = Light fire engine, up to 17,500 GVW
- 663 = Light fire engine (with slip-on) up to 12,500 GVW
- 664 = Medium fire engine (under development) 21,000-26,000 GVW
- 665 = Heavy fire engine (Model 14)
- 667 = Heavy fire engine (diesel)
- 668 = Water tender (gas)
- 669 = Water tender (diesel)
- 925 & 926 = Unimog or equivalent special-purpose vehicle

### **Property Transfer/Replacement**

***Surplus Vehicle/Early Turn-Ins/Transfer*** Fire vehicles that are to be replaced may be transferred to another area for continued service with the approval of the appropriate state directors and WCF managers. In these instances, the vehicle remains in the same class, and the FOR and use rates will continue to be charged to the unit acquiring the vehicle. Districts wishing to dispose of fire engine equipment prior to the normal replacement date may do so.

In these instances, no future replacement is provided and there is no accrued credit from the FOR collected on that unit prior to disposal. Districts acquiring this type of equipment continue payment of the FOR and use rates.

***Conversions*** Offices, in possession of fire engine equipment due for replacement, have the option of replacing that equipment with vehicles of another class, if the change in NUS is covered and in the approved FMP (e.g., conversion of two light engines to one heavy engine). State director and property manager approval is required, and sufficient contributions through the FOR or other funds to make up any difference in cost are required