1 – Overview and Program Directives

Introduction

Scope

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

Purpose

This document provides a reference for current operational policies, procedures, and guidelines for managing wildland fire and aviation operations.

Overview

In addition to a thorough understanding of policies, procedures, and guidelines, safe and efficient wildland fire and aviation operations require a personal commitment to excellence.

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 (FMPs) 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 (IIBMH), Fireline Handbook*, and the BLM *Standards for Fire and Aviation Operations*.

Planning Policy

Every area with burnable vegetation must have an approved fire management plan (FMP). Plans must address firefighter and public safety, values to be protected, and public health issues; FMPs must be consistent with land and resource management plans. FMPs 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 FMP 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 FMP, 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.

Prescribed Fire

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, but must consider firefighter and public safety, cost-effectiveness, benefits, and values to be protected consistent with resource objectives.

- Fire management will use the full range of strategic and tactical options as described in an approved FMP. Without an approved plan, 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 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 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 Cause Determination 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.

Employee Responsibility

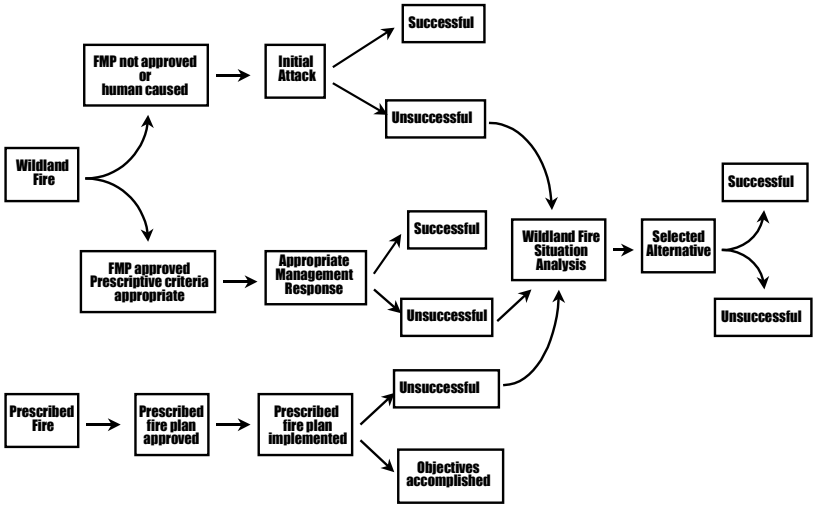
All employees, cooperators, contractors, and volunteers who participate in wildland fire operations have the duty to treat one another with respect and to maintain a work environment free of harassment based on race, color, national origin, sex, religion, disability, age, or sexual orientation. Harassment in any form is not acceptable and will not be tolerated.

Additionally, every individual has a responsibility to report harassment or to take positive action to mitigate its effects.

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.



This 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 (FMP) or with a human-caused wildland fire, have limited management options. In these situations, units may only implement initial attack strategies. When the FMP 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 (FMP) – 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 FMP 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 a 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 (Burn 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 guides 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 BLM-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 through all levels of the planning process.

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 *Management Performance Requirements for Fire Operations*.

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 *Management Performance Requirements for Fire Operations. Ensure training is completed to support delegations to line managers and principal actings*.

Field Office Manager

The field office manager is responsible to the State Director for the safe, effective, and efficient implementation of fire management activities within their unit, including cooperative activities with other agencies or landowners in accordance with delegations of authorities. The field office manager or their principal acting will meet the required elements outlined in the *Management Performance Requirements for Fire Operations*.

Management Performance Requirements for Fire Operations

Performance Required	Directorate	State Director/ Associate	Field Office Manager
1 Take necessary and prudent actions to ensure firefighter and public safety.	✓	✓	✓
2 Ensure sufficient qualified fire and non-fire personnel are available to support fire operations at a level commensurate with the local and national fire situations.	✓	✓	✓
3 Ensure Fire Management Officers (FMOs) are fully qualified.	✓	✓	✓

Performance Required	Directorate	State Director/ Associate	Field Office Manager
4 Provide a written Delegation of Authority to FMOs that provides an adequate level of operational authority. Include Multi-agency Coordinating (MAC) Group authority.	✓	✓	✓
5 Identify resource management objectives to maintain a current fire management plan (FMP) that identifies an accurate and defensible most efficient level (MEL) of funding and personnel.		✓	✓
6 Develop protection and use standards and constraints that are in compliance with Department of the Interior (DOI) and BLM fire policies.		✓	✓
7 Ensure use of fire funds is in compliance with DOI and BLM policy.	✓	✓	✓
8 Management teams will meet once a year to review fire and aviation policies, roles, responsibilities, and delegations of authority. Specifically address oversight and management controls, critical safety issues, and high risk situations such as team transitions, periods of multiple fire activity, and Red Flag Warnings.	✓	✓	✓
9 Review safety policies, procedures, and concerns with field fire and aviation personnel. Discussions should include issues that could compromise safety and effectiveness during the upcoming season.			✓
10 Ensure timely follow-up actions to program reviews, fire preparedness reviews, fire and aviation safety reviews, fire critiques, and post-season reviews.	✓	✓	✓
11 Ensure fire and aviation preparedness reviews are conducted in all field offices each year. **Personally** participate in at least one inspection annually.		✓	✓
12 Ensure an approved burn plan is followed for each prescribed fire project, including follow up monitoring and documentation to ensure resource management objectives are met.		✓	✓

Performance Required	Directorate	State Director/ Associate	Field Office Manager
13 Meet annually with major cooperators and review interagency agreements and memoranda of understanding (MOUs) to ensure their continued effectiveness and efficiency (may be delegated by State Director).		✓	✓
14 Ensure that a Wildland Fire Situation Analysis (WFSA) is completed and approved on all fires that escape initial attack.			✓
15 Ensure reviews are conducted on all fires that require a WFSA. Personally attend reviews on Type 1 (State Director may delegate) and Type 2 fires.		✓	✓
16 Ensure that a Wildland Fire Implementation Plan (WFIP) is completed and implemented for all fires managed for resource benefits.			✓
17 Provide management oversight by personally visiting wildland and prescribed fires each year.		✓	✓
18 Provide incident management objectives, written delegations of authority, and line officer briefings to incident management teams.			✓
19 Monitor the fire situation and provide oversight during periods of critical fire activity/situations of high-risk.	✓	✓	✓
20 Assign a resource advisor to all escaped fires.			✓
21 Hold and participate in annual pre- and post-season fire meetings.	✓	✓	✓
22 Conduct fire preparedness reviews.	✓	✓	✓
23 Ensure appropriate investigations are conducted for incidents, entrapments, and serious accidents.	✓	✓	✓
24 For all human-caused fires where liability can be determined, ensure trespass actions are initiated to recover cost of suppression activities, land rehabilitation, and damages to the resource and improvements.		✓	✓

Fire Management

National Office

The Director of the Office of Fire and Aviation provides leadership for the BLM fire and aviation management program and assists states and field offices to develop, implement, and maintain a safe, effective, and efficient fire and aviation management program that meets land management objectives.

The Director is responsible and accountable for developing policy, program direction, and international coordination. Works with interagency cooperators to coordinate, reduce duplication, and increase efficiencies in wildland fire management. Provides feedback to state offices on performance requirements.

State Office

The State Fire Management Officer (SFMO) provides leadership for the BLM fire and aviation management program at the state level.

The SFMO is responsible and accountable for providing planning, coordination, training, technical guidance, and oversight to the field office fire management programs throughout the state. The SFMO also represents the state director on interagency geographic coordination groups and Multi Agency Coordination (MAC) groups. The SFMO provides feedback to field offices on performance requirements.

Field Office

The Fire Management Officer (FMO) is responsible and accountable to provide leadership for the BLM fire and aviation management program at the local level. The FMO coordinates with appropriate agency administrators to determine the level of program required to implement land use decisions through the Fire Management Plan (FMP) to meet management objectives. The FMO negotiates interagency agreements and represents the field office manager on local interagency fire and aviation groups.

Fire Management Staff Performance for Fire Operations

Performance Required	D-F&A	SFMO	FMO
1 Create, instill, and maintain safety first as the foundation of all aspects of fire and aviation management.	✓	✓	✓
2 Ensure completion of a job hazard analysis (JHA) for fire and aviation activities so mitigation measures are taken to reduce risk.			✓
3 Ensure work/rest and R&R guidelines are followed during all fire and aviation activities. Deviations are approved and documented.	✓	✓	✓
4 Ensure that only trained and 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. Ensure clear and concise communications are maintained at all levels.	✓	✓	✓
7 Develop and maintain an open line of communication with publics and cooperators.	✓	✓	✓
8 Ensure that the fire and aviation management staff understand their role, responsibilities, authority, and accountability.	✓	✓	✓
9 Ensure individuals selected for positions meet or exceed the Fire Management Positions Qualifications Standards. An Individual Development Plan must be provided for incumbents who do not meet new standards.	✓	✓	✓
10 Based on allocated funding level, provide a safe, effective, and efficient fire protection and use program.	✓	✓	✓
11 Organize, train, equip, and direct a qualified work force possible to ensure safe, effective, and efficient fire and aviation activities.	✓	✓	✓
12 Take appropriate action when performance is exceptional or deficient.	✓	✓	✓

Performance Required	D-F&A	SFMO	FMO
13 Ensure BLM and DOI fire and aviation policies are understood, followed, and coordinated with other agencies as appropriate.	✓	✓	✓
14 Monitor to recognize when complexity levels exceed local capabilities. Increase managerial and operational resources to meet the need.	✓	✓	✓
15 Initiate, conduct, and/or participate in fire management related reviews and investigations.	✓	✓	✓
16 Provide for and personally participate in periodic site visits to individual incidents and projects.	✓	✓	✓
17 Utilize a decision making process to ensure the proper level of management is assigned to all incidents.		✓	✓
18 Review and evaluate performance of the fire management organization and take appropriate actions.	✓	✓	✓
19 Ensure incoming personnel and crews are briefed prior to fire and aviation assignments.		✓	✓
20 Ensure a Wildland Fire Situation Analysis (WFSA) is completed and retained for all fires that escape initial attack.		✓	✓
21 Monitor fire season severity predictions, fire behavior, and fire activity levels. Take appropriate actions to ensure safe, efficient, and effective operations.	✓	✓	✓
22 Ensure that you have adequate resources available to implement fire management operations.			✓
23 Provide fire personnel with adequate guidance, training and decision-making authority to ensure timely decisions.		✓	✓
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 effective transition of incident management occurs and oversight is in place.	✓	✓	✓

Performance Required	D-F&A	SFMO	FMO
27 Develop and maintain agreements, annual operating plans, and contracts on an interagency basis to increase effectiveness and efficiencies.	✓	✓	✓
28 Provide the expertise and skills to fully integrate fire and aviation management into interdisciplinary planning efforts.	✓	✓	✓
29 Work with cooperators to identify processes and procedures for providing fire safe communities within the wildland urban interface.	✓	✓	✓
30 Based on allocated funding level, provide a safe, effective, and efficient fire protection and use program.	✓	✓	✓
31 Develop, maintain, and annually evaluate the FMP to ensure accuracy and validity.	✓	✓	✓
32 Ensure budget requests and allocations reflect MEL in the FMP.	✓	✓	✓
33 Develop and maintain current operational plans, e.g., dispatch, pre-attack, prevention.	✓	✓	✓
34 Ensure that reports and records are properly completed and maintained.	✓	✓	✓
35 Ensure fiscal responsibility and accountability in planning and expenditures.	✓	✓	✓
36 Assess, identify, and implement program actions that effectively reduce unwanted wildland fire ignitions and mitigate risks to life, property, and resources.		✓	✓
37 Effectively communicate the “natural role” of wildland fire to internal and external agency audiences.	✓	✓	✓
38 When human-caused fires occur trespass actions will be completed.		✓	✓

Requirements for Fire Management Positions

The following lists show the minimum operational experience required for BLM fire management positions. All positions must meet the minimum standards as addressed in the *Interagency Fire Program Management Qualifications Standards and Guide* and **the additional requirements listed below**

Prescribed Fire and Fuels Technician/Specialist:

- Prescribed Fire Burn Boss 2 (RXB2)
- Strike Team Leader/Task Force Leader or ICT4
- 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/Assistant FMO:

The position is considered moderate to high complexity in the *Interagency Fire Program Management Qualifications Standards and Guide* under the Wildland Fire Operations Specialist qualification standards.

FMO:

All of the operational experience required for the above positions, except currency, plus

- A minimum of one season experience in the position of Fire Control Officer (FCO) or Assistant FMO or Prescribed Fire Specialist or Lead Dispatcher/Center Manager
- Division Supervisor or Unit Leader (currency not required)

National and State Office Prescribed Fire and Fuels Management Specialist:

- Prescribed Fire Burn Boss (RXB2)
- Division Supervisor, Unit Leader, or ICT3
- 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 or 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

National Fire Program Lead:
The qualifications for this position are identified in the *Interagency Fire Program Management Qualifications Standards and Guide.*

Training for Designated Agency Administrators

The following training is required for designated agency administrators. While local fire management course can be valuable and agency administrators are encouraged to attend, they are required to attend either National Fire Management Leadership or Local Fire Management Leadership. The national course is the preferred alternative. The training should be completed within two years of appointment to a designated management position.

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, if they are comparable to those listed or it is determined that the candidate meets the competencies for the position.

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 who meets 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 Individuals incumbent in above positions who do not meet these experience requirements can be waived of these requirements if they have performed satisfactorily. The development training to fully achieve competencies should be addressed in an IDP within a defined time period.

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. Coordinate 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 in attaining fire management program objectives. The ability of a single agency to implement a fire management program is limited without coordination and assistance from other organizations. Interagency cooperation and 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 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).

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.

Under the Interagency Agreement for Fire Management, BLM supports the Forest Service's efforts in international disaster response. The Forest Service has an agreement with the U.S. Agency for International Development's Office of Foreign Disaster Assistance (OFDA).

In order for BLM employees to qualify to assist the Forest Service in international response, they must first attend a Disaster Assistance Response Team (DART) training session.

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 (DOI) agency directors, dated October 1, 1982. The Council seeks 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 specific federal issues.

The Interior Fire Coordination Committee (IFCC) The IFCC guides and coordinates development of wildland fire policy among the four wildland management agencies in the DOI. The IFCC provides leadership 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, located in Boise, Idaho, is a complex of federal agencies with 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 (USFS), 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 and guidance, as well as technical and logistical support to the wildland fire management community.

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

The BLM, BIA, USFS, 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 allocating or reallocating 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

BLM State Offices oversee and facilitate the implementation of interagency standards and policies developed at the national level. Within their geographic areas, State Fire Management Officers (SFMOs) help develop and implement interagency wildland fire management programs to improve effectiveness and efficiency. Through coordination with counterparts from other agencies, SFMOs ensure 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. Fire Management Officers (FMOs) and their staffs develop and maintain cooperative interagency relationships.

Interagency Mobilization

National Dispatch/Coordination System

The wildland fire dispatch system in the United States has three levels (tiers): national, geographic area, and local level. Logistical dispatch operations occur at all three levels, while initial attack dispatch operations occur primarily at the local level. 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.

The *National Interagency Mobilization Guide*, which is revised annually, describes interagency mobilization and dispatch procedures at all levels. Its directives will be followed by all state and field offices without deviation.

National Interagency Coordination Center (NICC) Located in Boise, Idaho, at the National Interagency Fire Center (NIFC), NICC is staffed by personnel from various federal agencies. NICC works with Geographic Area Coordination Centers (GACCs), 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 responses 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 the NICC, where it is consolidated into one national report. This report is sent to the GACCs, agency directors, and Washington Office personnel.

Geographic Area Coordination Centers (GACCs) There are 11 GACCs, each of which serves a specific geographic portion of the United States. Each GACC interacts with the local dispatch centers, 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 the cost-effective and timely coordination of emergency response for all incidents within the specified geographic area. GACCs are also responsible for determining needs, coordinating priorities, and facilitating the mobilization of resources from their areas to other geographic areas. Each GACC 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 throughout the country as dictated by the needs of fire suppression agencies. The principal mission of a local dispatch center is to provide safe, 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 also 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-wildland fire workload is generated by another (non-BLM) agency operating in an interagency dispatch center, 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

Agreements and Contracts

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

Agreements will be comprised of two components: the actual agreement and an operations plan. The agreement will outline the authority and general responsibilities of each party and the operations plan will define the specific operating procedures.

All appropriate agreements and operating plans will be provided to the servicing dispatch center. The authority to enter into interagency agreements is extensive (reference *BLM Manual 9200*, *Departmental Manual, 910 DM*, the *Reciprocal Fire Protection Act,* 42 U.S.C. 1856, and the *Federal Wildland Fire Management Policy and Program Review*).

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 and other national agreements give substantial latitude while providing a framework for 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 addressing all potential areas of cooperation and coordination in fire management programs.

Agreements Agreements are prepared to enhance safety, effectiveness, and efficiency in fire management operations. The following elements should be addressed in each agreement:

1) The authorities appropriate for each party to enter into an agreement.

2) The roles and responsibilities of each agency signing the agreement.

3) An element addressing the cooperative roles of each participant in prevention, pre-suppression, suppression, fuels, and prescribed fire management operations.

4) Reimbursements/Compensation – All mutually approved operations that require reimbursement and/or compensation will be identified and agreed to by all participating parties through a cost-share agreement. The mechanism and timing of the funding exchanges will be identified and agreed upon.

5) 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 _____.

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) Termination Procedure – The agreement shall identify the duration of the agreement and cancellation procedures.

8) A signature page identifying the names of the responsible officials should be included in the agreement.

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.

Assistance in preparing agreements can be obtained from field or state office fire and/or procurement staff.

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 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 times when 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 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 shall be used. Avoid personal "identifiers" and non-ICS acronyms. (For example, a 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 might dictate that local fire departments or cooperators and federal resources each use their own tactical frequencies in fire suppression, allowing the "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 all agencies change to a single frequency or establish a common communications link as soon as practical.

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 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 the 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.

7) Reimbursement/Compensation – Compensation should be "standard" for all fire departments in the geographic area. The rates identified shall be used. Reimbursements should be negotiated on a case-by-case basis, 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, and training.

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 an agency administrator of the responsibility for managing a fire program. The office's 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, without a formalized agreement. However, to provide safe, efficient, and effective emergency responses, 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 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); departments and agencies have been assigned primary and support responsibilities for each of these functions.

In the Federal Response Plan, the USFS 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.

International Assistance

U.S. - Mexico Cross Border Cooperation on Wildland Fires In June of 1999, the Department of the Interior and the Department of Agriculture signed a Wildfire Protection Agreement with Mexico. The Agreement has two purposes:

1) To enable wildfire protection resources originating in the territory of one country to cross the United States-Mexico border in order to suppress wildfires on the other side of the border within the zone of mutual assistance (10 miles/16 kilometers) in appropriate circumstances.

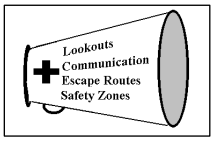
2) To give authority for Mexican and U.S. fire management organizations to cooperate on other fire management activities outside the zone of mutual assistance.

National Operational Guidelines are being developed for this agreement, which will be put into the National Interagency Mobilization Guide. These guidelines cover issues at the national level and also provide a template for those issues that need to be addressed in local operating plans. The local operating plans identify how the Agreement will be implemented by the Geographical Area Coordination Centers (and Zone Coordination Centers) that have dispatching responsibility on the border. The local operating plans will provide the standard operational procedures for wildfire suppression resources that could potentially cross the U.S. border into Mexico.

Disaster Assistance Response Teams (Dart)

A DART is the operational equivalent of an ICS team used by the Office of Disaster Assistance (OFDA) to provide on-the-ground operational capability at the site of an international disaster. The week-long training covers information about the United States Government (USG) agencies charged with the responsibility to coordinate USG responses to international disasters; the purpose, organizational structure, and operational procedures of a DART; the positions on a DART that a BLM employee may be requested to fill (based on experience); and how the DART relates to other international organizations and countries during the deployment of a DART. These assignments are coordinated through the National Office of Fire and Aviation's International Program.

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 safe and effective management in all activities. Safety is the responsibility of everyone assigned to wildland and prescribed fire, and must be practiced at all operational levels–from the director, state director, field office, and area manager–to employees in the field. Agency administrators need to stress that firefighter and

public safety always takes precedence over property and resource loss. Coordination between the fire management staff and unit safety officer(s) is essential in achieving this objective.

For additional safety guidance and references please refer to:

- *Fireline Handbook,* (PMS 410-1, NFES 0065)
- *Interagency Incident Response Pocket Guide* (PMS 461, NFES 1077)
- *BLM Safety Handbook 1112-2*

Food and Nutrition

Nutritious food can be a morale booster, but more importantly, it fuels muscles for hard work and internal organs for health and fitness. A firefighter may burn 5,000 to 6,000 calories a day. These calories must be replaced to avoid cramping, fatigue, and impaired judgement. Government-provided food must be low in fats and high in complex carbohydrates.

Drinks provided must replace essential fluids lost from the body during exercise. On a normal fireline assignment, firefighters may replace 12 or more quarts of fluids a day. In some cases, firefighters may need to replace one to two quarts of fluids per hour. Water is an excellent way to replenish fluid loss. Natural juices and sport drinks contain energy-restoring glucose. Avoid caffeinated, carbonated, and “diet” drinks.

Fatigue

Firefighting is hard, dirty, and inherently dangerous work. 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. At any level in the fire organization or management, fatigue can lead to mistakes which result in accidents and injuries. Here are three areas to monitor:

Work and Rest

Sleep is a prime factor in overcoming 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 hard. The NWCG *Interagency Business Management Handbook* 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 (IC) 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. The pulse should recover to less than 110 beats per minute; if not, a longer break is needed. 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. Sweat is your main defense. Everyone on the fireline must understand the importance of drinking water often.

There are three forms of heat stress. The mildest is heat cramps. Heat stress can progress to heat exhaustion and eventually heat stroke. **Heat stroke is a medical emergency!** Delayed treatment can result in brain damage and even death. At the first sign of heat stress, stop work, get into the shade, and begin drinking fluid.

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 1997, a NWCG team studying the short and long-term effects of exposure to smoke reached consensus on a risk management plan that could be implemented within the existing fire management structure.

In brief, participants concluded that while toxic emissions were present in smoke, that the incidence of exposure in excess of OSHA permissible exposure limits was relatively low (fewer than five percent of prescribed fire cases, even less in wildfire), and that documented health effects were moderate and often reversible.

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

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).

Driving Limitations

The Federal Motor Carriers Safety Regulations, Part 393.3, and state laws, restrict those drivers whose assignment requires a commercial driver's license (CDL) (vehicles over 26,001 lbs. and all buses) to 10 hours driving time in a 15-hour duty period, with 8 hours off between shifts.

Drivers whose duty is not limited by this law may not exceed 10 hours driving time in a 16-hour duty period, and must have 8 hours off between shifts.

Agency administrators or their designees can extend these hours on incidents, (e.g., first burning period, initial attack, 24-hour shifts), after they complete an

analysis, and provided the extension of shift length contributes to increased firefighter safety.

Personal Protective Equipment

All operational personnel on wildfires and prescribed fires are required to use PPE. Employees must be trained to use safety equipment effectively.

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

Required PPE includes:

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

Special PPE and a job hazard analysis (JHA) is required for operations involving aluma-gel. Aluma-gel mixing crews must be equipped with eye protection, fire retardant anti-static or 100 percent cotton coveralls, dust masks, and gloves.

Head Protection

Personnel must be equipped with hard hats and wear them at all times while on the fireline. Hard hats must be equipped with a chin strap–which must 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 "Helmet, safety, plastic" (NFES 0109, 8415-01-055-2265/GSA) listed in NWCGs *National Fire Equipment System Catalog: Fire Supplies and Equipment,* or equivalent helmet meeting 1977 NFPA Standard requirements.

Eye and Face Protection

The following positions require the wearing of eye protection: nozzle person, chainsaw operator/faller, heliport and ramp personnel, and retardant mixing crew. Other personnel in the immediate vicinity of these operations may also require eye protection. Face shields providing full face protection must be worn by Terra-Torch® nozzle operators and power sharpener operators.

Hearing Protection

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

Seasonal fire suppression personnel must be issued two pairs of earplugs (either universal or fitted), 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.

Face and Neck Protection

Nomex® "shrouds" are not required PPE. If used, the shrouds must meet the design and performance requirements identified in the NFPA 1977 Standard on Protective Clothing and Equipment for Wildland Fire Fighting, 1998 ed.

Leg Protection

Chainsaw chaps, in good condition, must be worn by all chainsaw operators/fallers and swampers.

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. Supervisors and firefighters must never rely on fire shelters instead of using well-defined and pre-located escape routes and safety zones. **The shelter is to be viewed as a last resort, and will not be used as a tactical tool**.

Fireline Safety

Incident Briefings

The fire manager must ensure that safety briefings are occurring throughout the fire organization, and that safety factors are covered with incident personnel at all operational briefings through the IC. 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 the 10 Standard Fire Orders, 18 Watch Out Situations, and the LCES Analysis of Tactical Applications on the Incident Action Plan Safety Analysis (ICS 215-A) for guidance at strategy meetings, during briefings, and when developing the incident action plan, safety message, and medical plan.

LCES –A System for Operational Safety

L – Lookout(s)

C – Communication(s)

E – Escape routes

S – Safety zone(s)

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

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

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

Using the Principles of LCES for Risk Analysis

"Safety" is defined as *freedom from exposure to danger, exemption from injury, and to protect from accident.* Being safe requires knowledge and skill in methods of avoiding accidents, injury, and exposure to hazards. As such, it requires an ability and attitude that grows with experience and training.

In fire management activities there are objective and subjective hazards. The objective hazards, such as fire entrapment, snags, rolling debris, and terrain cannot be eliminated–these are risks inherent to firefighting. The possibility of injury or entrapment is always there; the probability may be large or small.

Subjective hazards are those that we create and also have control over (attitudes and abilities). 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 and reevaluate the situation as it changes.

In the following "Risk Analysis" section, answer each question by checking the appropriate column. For each question answered with a No, the principles of LCES become important responses to reduce the risk of entrapment.

Risk Analysis

Situation	Considerations	Yes	No
Fight Fire Aggressively but Provide for Safety First	• Is the suppression method adequate? • Are there adequate resources and time for effective suppression? • Are lookouts posted? • Is communications prompt with crews and other resources? • Have escape routes been established? • Do you feel comfortable with your assignment?		

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
Initiate All Actions Based on Current and Expected Fire Behavior	• Can the resources you are replacing give you a thorough briefing? • Can you observe the area, use scouts? • Have escape routes and safety zones been thoroughly scouted? • Are they marked for night use? • Have potential dangers been located, can they be dealt with? • Access to weather and fire behavior forecast?		

To Reduce the Risks – Post lookouts, check communications, back off if you have doubts about your escape routes or safety zones or if the situation becomes too complex.

Situation	Considerations	Yes	No
Safety Zones and Escape Routes Not Identified	• Can you identify them by scouting? • Are they large enough for everyone without using fire shelters? • Does the escape route need clearing? And marking? • How much warning time do you need to get to your safety zone safely? • Does everyone know the escape routes and safety zones? • Can a safety zone be created? • Have you seen the escape routes and safety zones?		

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

In Country Not Seen In Daylight	• Can the resources you are replacing give you a thorough briefing? • Can you observe the area/use scouts? • Have escape routes and safety zones been thoroughly scouted and marked for night use? • Have potential dangers been located, can they be mitigated?		

To Reduce the Risks – Post lookouts, check communications, back off if you have doubts about your escape routes or safety zones or if the situation becomes too complex.

Situation	Considerations	Yes	No
Fire Not Scouted and Sized Up	• Can you observe personally, or use scouts? • Do you know the location of the fire perimeter? • Do you know the direction of fire spread? • Does the direction of fire spread increase the risk? • Do you know the fuels and their condition? • Do topographic hazards exist? • Does enough information exist to establish a plan of attack? • Do other dangers exist?		

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!

Unfamiliar with Weather and Local Factors Influencing Fire Behavior	• Can you ask questions of local experts? • Does the operational period plan give you adequate weather and information? • Can you get information from resources that have been on the fire? • Is there any other way to obtain information?		

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

Uninformed on Strategy, Tactics or Hazards	• Can communications be established to find out? • Can scouting safely identify potential hazards? • Have strategy, tactics or hazards changed since last informed? • Can you get a briefing from your supervisor?		

To Reduce the Risks – Post lookouts, determine escape routes and establish safety zones. Consider backing off until you are informed. Don't leave a staging area or operational briefing until you have all the pertinent information.

Situation	Considerations	Yes	No
Instructions and Assignments Not Clear	**Giving Instructions** • Did they ask questions? • Did they take notes? • Did they repeat them back? • Did you give all the necessary information: task, location, communications, hazards, who, when, etc. **Receiving Instructions** • Did you really listen? • Did you understand the assignment, location, and the nature and location of hazards?		

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, plus any hazards, communication plan, weather and fire behavior, and status of adjoining forces.

No Communication Link with Crew Members Supervisors & Adjoining Forces	• Can communication be established? • Is the communication triangle complete?		

To Reduce the Risks – If the situation is complex, back off until communications are in place.

Constructing Line without a Safe Anchor Point	• Can you hold the line without the fire hooking under you? • Are there adequate safety zones and escape routes? • Can you develop your starting point into an anchor point? • Have you posted good lookouts? • Do you have good communications?		

To Reduce the Risks – Start the line in another location.

Situation	Considerations	Yes	No
Attempting a Frontal Assault on a Fire	• Has the fire been scouted and sized up? • Is your position defensible? • Are escape routes and safety zones adequate? • Do you have an anchor point? • Do you have adequate resources to complete the assault? • Are you informed on strategy, tactics, and hazards? • Is the terrain favorable to holding the fire?		

To Reduce the Risks – Reassess your tactics, post lookouts.

Building Fireline Downhill with Fire Below	• Has the area been scouted for fire perimeter and behavior? • Will wind direction be at your back? Will it stay at your back? • Is the area free of chimneys and gullies? • Are there adequate safety zones and escape routes as you progress downhill? • Can you carry your burnout downhill as you go—to provide an anchor point and safety zones? • Have lookouts been posted? • Do you have good communications, especially with lookouts and crews working towards you? • Can the line be completed and burned out before the fire reaches the line? • Do you have adequate resources to complete the assignment? • Is the aerial support available if needed? • Has everyone been briefed on the assignment, fire behavior, weather, communications, escape routes and safety zones, hazards, and tactics?		

To Reduce the Risks – If the answer is “No” to any of these questions, consider other tactics, provide for safety first. Never compromise escape routes to safety for the sake of building line.

Situation	Considerations	Yes	No
Unburned Fuel Between You and the Fire	• Can you see the fire? • Is fire spread in a direction away from you? • Will your position be defensible when the fire reaches you? • Is your line anchored? • Are your escape routes and safety zones adequate?		

To Reduce the Risks – Post lookouts; consider a different location.

Cannot See the Main Fire, Not in Contact with Anyone Who Can	• Are you informed on expected fire behavior and weather? • Do you have safety zones and escape routes? • Will you receive adequate warning to go to your safety zone? • Are you informed on strategy, tactics, and hazards?		

To Reduce the Risks – Re-evaluate your position, limit your exposure.

On a Hillside Where Rolling Material Can Ignite Fuel Below	• Can you locate/construct a line to prevent material rolling below? • Will you get enough warning of rolling material to prevent being hit by it? • Can you see where any material that rolls below you goes and what it does? • Is the area free of large amounts of flashy fuels? • Is the area free of chimneys, gullies and steep slopes? • Do you have two escape routes so you can go either way?		

To Reduce the Risks – Post lookouts; consider locating line in a defensible position.

Situation	Considerations	Yes	No
Weather is Getting Hotter and Drier	• Do you have a workable plan if fire behavior increases? • Do you have a plan if the fire reaches you earlier than expected? • Is the method of spread the same? • Are your escape routes and safety zones still adequate? • Will you have adequate warning if you need to use the safety zones?		

To Reduce the Risks – Take weather observations more frequently, Base all Actions on Current and Expected Fire Behavior. Reexamine your plan and Risk Analysis as fire behavior increases. Post more lookouts, if more warning time is needed.

Wind Increases or Changes Direction	• Is the wind at your back? Will it stay at your back? • Do you know what you will do if the fire reaches you faster than expected? • Are escape routes and safety zones still adequate? • Do you still have adequate warning time? • Will you be able to handle any additional spotting? • Is there little probability of the fire hooking around you? • Can you still carry out your strategy and/or tactics?		

To Reduce the Risks – 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.

Situation	Considerations	Yes	No
Getting Frequent Spot Fires Across the Line	• Can you handle increased spotting? • Do you have a plan for long range spotting? • Is help available if necessary? • If fire behavior increases is your position still defensible? • Do you have more than one safety zone in case one gets cut off? • Do the primary lookouts have a good view of the situation? • Is the primary burning period ending?		

To Reduce the Risks – Be ready to retreat. Keep your guard up even if spotting has not occurred for a few hours.

Terrain and Fuels Make Escape To Safety Zones Difficult	• Does the crew's condition allow for fast travel? • Will you get adequate warning to make it to your safety zone? • Can escape routes be improved to make travel faster? Are escape routes marked? • Will posting more lookouts give adequate warning?		

To Reduce the Risks – Consider other tactics that will allow you to be in a safer location!

Taking a Nap Near the Fireline	• Are lookouts posted? • Is the area free of hazards? • Are you still within agency work and rest guidelines? • Does your crew need a break? Have they been pushed too hard?		

To Reduce the Risks – Keep lookouts posted; rotate lookouts. Communicate crew condition and status to supervisor or chain-of-command contact.

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—are there safer strategies and tactics?" Ask, "What am I protecting?"

Remember: there is no value worth the risk of exposing crew(s) to a situation with a high possibility or probability of entrapment.

In situations of low complexity you may be able to do your risk analysis in your head. However, as the situation gets more complex (i.e., more hazards or higher probabilities), do the Risk Analysis on paper to make sure you recognize the potential danger, and take proper steps to ensure safety through briefings and status updates.

Escape Routes and Safety Zones

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

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

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

- Calculations indicate that for most fires, Safety Zones must be wider than 164 feet 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.
- All firefighter PPE must be worn.
- Keep in mind that these guidelines do not address convective energy.

Standard Safety Flagging

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

Safety Zones/Escape Routes lime green, fluorescent, biodegradable 1" wide (NFES 0258). When flagging no longer shows valid escape routes/safety zones, remove it immediately.

Hazards yellow w/black diagonal stripes, fluorescent, biodegradable 1" wide (NFES 0267).

Common Denominators of Fire Behavior on Tragedy Fires

- Most incidents happen on the smaller fires or on isolated portions of larger fires.
- Most fires are innocent in appearance before unexpected shifts in wind direction and/or speed results in "flare-ups" or "extreme fire behavior." In some cases, tragedies occur in the mop-up stage.
- Flare-ups generally occur in deceptively light fuels, such as grass and light brush.
- 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

Management must be aware of the potential hazards of downhill line construction when determining incident objectives and strategies, developing alternatives in the WFSA process, and providing overall direction to incident commanders.

Fireline can be constructed with handtools, mechanized equipment, water or retardant. Some line, in order to be reliable, must be cut to mineral soil, constructed so as to catch rolling material, and built along 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. Direct attack methods should be used whenever possible. The following are guidelines 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 qualified supervisor after evaluating the situation.
- Downhill line construction should not be attempted when fire is present directly below the proposed anchor 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 Safety Zone from any point along the line, if the fire unexpectedly crosses below them.
- A downhill line should be securely anchored at the top. Avoid underslung line if at all possible.
- Line firing should be done as the line progresses, beginning from the anchor point at the top. Go as fast as is safe. The burned out area provides a continuous safety zone for the crew and reduces the likelihood of fire crossing the line.
- Be aware if and avoid the 18 Watch Out Situations.
- Maintain full compliance with the 10 Standard Fire Orders.

Unexploded Ordnance (UXO)

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

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

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

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

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

UXO are 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. An 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 DIDN'T DROP IT, DON'T PICK IT UP!"**
- When you see UXO, stop. Do not move closer.
- Never transmit radio frequencies (including, 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.

See Risk Assessment/Mitigation or Firefighters Working Around Ordinance in the Appendix.

Hazardous Materials

Purchasing Purchase of hazardous materials (products containing chemicals) should be done using waste minimization principles to prevent surplus of product. Many products are sold with a shelf life that can expire before use if not managed properly. **Material Safety Data Sheets (MSDSs) should be obtained at time of purcase and used as part of safety briefings.**

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

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

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

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

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, and to "personally visit an appropriate number of escaped fires each year." Personal protective equipment (PPE) is required for certain scenarios. If you have any questions, please discuss them with your fire and aviation management staff.

Visit to Incident Base

The minimum requirements for PPE at an incident base are the same as all field locations. Refer to BLM Manual Handbook 1112-2, 3.3 *Safety and Health for Field Operations:*

- 8" leather lace boots with non-slip soles and heels

- long trousers
- long-sleeve shirt

The 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: required PPE and the required physical fitness and training requirements which vary based on whether or not the manager is escorted or unescorted. Escorts must be qualified at the Single Resource Boss (Crew or Engine) level.

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

Training and Physical Fitness Requirements

If Escorted: No previous training required. No specific physical fitness requirements; however, managers must be able to walk in mountainous terrain and be in good physical condition with no known limiting conditions. A medical examination (including an exercise electrocardiogram) should be considered if a manager is not physically active or in good health.

If Unescorted: A fitness level of Moderate is required, plus successful completion of the following:

- Introduction to Fire Behavior (S-190)
- Firefighter Training/Standards for Survival (S-130)

Helicopter Observation Flights

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

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

Training Requirements 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

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

Training Requirements 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 *BLM Manual H-9214-1, Prescribed Fire Management Handbook*, and Chapter 6, Prescribed Fire.

Briefings

A personnel briefing will be conducted prior to any prescribed fire activity to ensure those people involved understand the operational procedure and what their individual assignments are. Every person involved in a prescribed fire project is responsible for identifying safety issues and concerns.

Briefings must cover safety considerations for both known site specific hazards and potential hazards. The development of a briefing checklist and a job hazard analysis (JHA) are required and will be attached to the Prescribed Fire Plan (Burn Plan). Additional components of the Prescribed Fire Plan that have a direct impact on safety are: the Go/No Go Checklist, and the Communications Plan.

PPE

All personnel on a prescribed fire project are required to wear the 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. The following are ways to mitigate exposure to smoke:

- Use equipment rather than people, when possible, in holding areas (sprinklers, foam, etc.)
- Design burn plans with “maximum allowable perimeter” to permit minor slopovers and to minimize suppression activities.
- 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 ignition personnel.
- 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.

SAFENET

Reporting unsafe situations in wildland and prescribed fire operations.

The Department of Interior agencies and the USDA Forest Service have created and adopted a common reporting form and system to report unsafe situations or close calls in wildland and prescribed fire operations, all-risk incidents, and training events. SAFENET is the “SAFECOM” for on-the-ground fire incidents. SAFENET denotes “safety and health network in fire operations.” This new system allows for reporting and resolving unsafe or unhealthful field situations quickly **and at the level closest to the fire.** Information gathered from the form will also provide important safety-related data to the national center to determine long-term trends and problem areas.

The objectives of the form and process are:

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

Individuals who observe or who are involved in an unsafe situation should initiate corrective action, if possible, and then report the occurrence immediately (within 48 hours) using SAFENET. You are encouraged, but not required, to put your name on the report.

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

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

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

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

5 – Training & Qualifications

Policy

It is BLM policy that only qualified personnel will be assigned duties in wildland fire suppression or prescribed fire. It is also BLM policy to adopt the National Wildfire Coordinating Group (NWCG) standard, and work jointly with other federal, state, and local agencies, through 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. 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. The IQCS is a tool to assist managers in certification decisions; it does not replace the manager's responsibility to validate that employees meet all requirements for position performance based on bureau standards.

It is recommend that a hard copy file folder be kept for each employee. The contents may include: training certificates, Work Capacity Test (WCT) Record, evaluations from assignments, Position Task Book verification, yearly updated IQCS forms, and an Individual Employee Master File Report from IQCS

The Incident Qualification Card (Red Card)

The Agency Administrator (or delegate) is responsible for annual certification of personnel serving in wildland and prescribed fire positions. Agency certification is issued annually in the form of an Incident Qualification Card (Red Card), which is certifies 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 Agency Administrator, Fire Manager, and individual are responsible for monitoring medical status, fitness, training, and performance, and for taking appropriate action to ensure the employee meets all position performance requirements.

Issuing Red Cards to EFF-paid employees assigned to wildland and prescribed fire activities 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) Incident Qualification and Certification System (IQCS).

Each State Director will designate an employee as the State Fire Qualifications Administrator, who ensures all incident experience, incident training, and Position Task Books for employees within the state are accurately recorded in the IQCS. All records must be updated annually or modified as changes occur.

Qualification System

BLM minimum qualification standards for 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 attend annual safety refresher training, which includes at a minimum, the 10 Standard Fire Orders; 18 Watch Out Situations, and principles of LCES (Lookouts, Communications, Escape Routes, and Safety Zones), 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. However, BLM fire managers must ensure these individuals are only assigned to duties commensurate with their abilities, agency qualifications, and equipment capabilities.

Qualification and Certification Committee

It is recommended that a qualification and certification committee be established for each field office with fire management responsibilities. In areas cooperating with 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. The committee also:

- Certifies that qualifications generated by IQCS or other agency systems for employees are valid by reviewing the training and experience of each employee.
- Determines if each employee possesses the personal characteristics necessary to perform the wildland and prescribed fire positions in a safe, efficient, and effective manner.
- Makes recommendations to the appropriate agency administrator or designee—who is responsible for final signature.
- Develops interagency training requirements and sponsors courses that can be offered locally.
- Ensures training nominees meet minimum requirements for attending courses.

Physical Fitness

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.

Concern for employee safety and health has prompted screening procedures to ensure that only the fit are assigned to physically demanding fire management activities. Unfit persons can become a hazard to themselves and/or co-workers.

Agency Administrators are responsible for ensuring the overall physical fitness of the firefighters. By evaluating regular and project work assignments and overall crew physical condition the agency administrator 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. Chapters 7, 8, 9 of *Fitness and Work Capacity, 2nd e*d. (1997), provide excellent guidance concerning training specifically for the pack test, aerobic fitness programs, and muscular fitness training.

Work Capacity Tests (WCTs)

The BLM has adopted the NWCG approved WCTs as the official method of assessing wildland firefighter fitness levels.

WCTs are administered annually to all employees who will be serving in wildland or prescribed fire positions that require a fitness level. **WCTs must be administered and passed prior to assigning the employee to wildland ore prescribed fire duty.**

Agency administrators (of delegates) are responsible for ensuring that the Health Screen Questionnaire is administered prior to initiating a physical training program and-or the WCT, and that accurate documentation on a WCT Record is retained until the next testing. Test results must also be entered in the IQCS annually to update the fitness level and date that will appear on the Red Card. Physical fitness dates entered in IQCS will reflect the date the employee passed the fitness test.

WCT Categories

The *NWCG Wildland and Prescribed Fire Qualifications Subsystem Guide*, 310-1 identifies WCTs for agency-specific positions. There are three fitness levels—**Arduous, Moderate, and Light**—which require an individual to demonstrate their ability to perform the fitness requirements of the position. Duties in the **"None"** category are normally performed in a controlled environment, such as an incident base. For any position identified in the 310-1 with a fitness level of "None" or any technical specialist positions required to be on the fireline for non-suppression tasks, the required fitness level shall be "Light."

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.

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.

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.

Test Administration

1) Job hazard analysis (JHA) shall be developed and approved for each field office prior to administrating the Work Capacity Test (see the sample JHA in the Appendix).

2) A Health Screen Questionnaire will be administered prior to initiating a physical training program and/or the WCT 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 (see Medical Examinations criterion below).

3) Administer the test using the JHA as a briefing guide.

4) Document using the Health Screen Questionnaire 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 (WCT) and recommend an exercise program and/or medical evaluation 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 WCT. 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 WCT. A doctor will then make a determination as to whether or not the employee should participate in a WCT.

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 document the administration of the WCT to all employees and job applicants. 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.

To be completed by employee:

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

Work Capacity Test Descriptions:

	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

To be completed by test administrator:

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)

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Medical Examinations

Agency administrators and supervisors are responsible for the occupational health and safety of their employees performing wildland and prescribed fire activities, and may require employees to take a medical examination at any time.

Establishing medical qualification programs, as stated in 5 CFR 339, provides 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, multidisciplinary 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.

The following minimum requirements establish interim bureau policy and associated guidance until department or inter-departmental policy is provided:

1) All employees who participate in wildland or prescribed fire activities requiring a fitness level must answer all the questions on the Health Screen Questionnaire prior to taking their Work Capacity Test. **If any Yes answer is indicated, a physical and/or functional fitness evaluation is required prior to the employee taking the WCT. A doctor will then make a determination as to whether or not the employee should participate in a WCT.**

2) All permanent, career-seasonal, 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 examination every three years or as indicated by the Health Screen Questionnaire. The physical examination 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 provide 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

Note: see the Appendix for Certificate of Pre-appointment Medical Examination for Firefighter, which may be used to supplement the SF-78 for arduous temporary and permanent positions.

Prescribed Fire Qualifications

Qualifications

The NWCG *Wildland Fire Qualification Subsystem Guide, PMS 310-1* is the BLM standard for prescribed fire qualifications. All BLM personnel assigned to prescribed fire operations will meet the minimum qualifications outlined in the subsystem guide. This includes personnel assisting other agencies even though the other agency may have established lower qualification standards.

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 Physical Fitness Requirements

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

Arduous All holding and ignition personnel, Ignition Specialist 2 (RXI2), Ignition Specialist 1 (RXI1), Fire Effects Monitor (FEMO), and Prescribed Fire Burn Boss 3 (RXB3).

Moderate Prescribed Fire Burn Boss 2 (RXB2).

Light Prescribed Fire Burn Boss 1 (RXB1).

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

Note: Due to agency differences in physical fitness requirements, managers will need to verify fitness levels individually, since IQCS will not check it automatically. The positions effected are: RXI1, RXI2, and RXB2.

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.

Bureau Specific Positions

As a supplement to the qualifications system, the BLM has identified the additional positions of Prescribed Fire Burn Boss 3 (RXB3), Engine Operator (ENOP), and Chainsaw Operators and Fallers.

Prescribed Fire Burn Boss 3 (RXB3)

Qualifications: ICT5, FFT1
Additional Required Training: S-290
Suggested Additional Training: S-201

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 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. These types of operations still require a signed prescribed fire plan.

This position is supported by the IQCS. The activity area is BL and the position code is RXB3. Managers will need to check the requirements individually, since IQCS will not check them automatically.

Engine Operator (ENOP)

Qualifications: CDL, FFT1
Additional Required Training: S-201, BLM Engine Operator Task Book
Recommended Training: BLM Engine Operator Course)

This position meets the needs at the local initial attack level. Successful completion of the Bureau's task book for this position is required for qualification.

See Chapter 8, Suppression Resources, for detailed information on additional performance requirements for this position.

Chain Saw Operators and Fallers

Chainsaws are an effective tool used in wildland and prescribed fire management. It is important that individuals involved in these activities are properly trained in safe and efficient operations.

The BLM has established the following minimum qualification and certification process for **BLM Chainsaw Operators (Red Card certified as Faller A)**:

- Successful completion of S-212, including the field exercise.
- Agency Administrator (or delegate) certification of qualifications after verification that training is successfully completed.
- Annual refresher training is required and specified by the local unit.
- Documentation must be maintained for individuals, including annual refresher training.

The BLM has established the following minimum qualification and certification process for **BLM Fallers (Red Card certified as Faller B or C)**:

- Coordinate with cooperators or contractors to adopt Faller training.
- Certification of employees will remain the responsibility of the Agency Administrator (or delegate) after successful completion of training has been verified.
- Training and certification of Fallers should be addressed case-by-case, and used only if a strong need is identified.
- Annual refresher training is required and specified by the local unit.
- Documentation must be maintained for individuals, including annual refresher training.

6 – Prescribed Fire

For the additional information on Prescribed Fire see the *Prescribed Fire Management Handbook, H-9214-1*.

Introduction

Fire is an essential ecological process in many ecosystems. Prescribed fire is used to alter, maintain or restore vegetative communities, achieve desired resource conditions, and to protect life, property, and values that would be degraded by wildland fire. Prescribed fire is only accomplished through management ignition and is supported by Bureau planning documents and appropriate environmental analysis, and in accordance with Bureau Manuals 9214 and 9211.

Policy

- The safety of firefighters and the public is the number one priority when planning and implementing a prescribed fire project.
- All prescribed fire projects will have an approved prescribed fire plan prior to ignition.
- All prescribed fire plans will contain measurable objectives, a predetermined prescription, and an escaped fire contingency plan to be implemented in the event of an escape.
- All prescribed fire projects will be in compliance with NEPA requirements.

Priorities

The Bureau will strategically focus activities by placing priority on:

- Areas where actions will mitigate threats to the safety of the public and our employees.
- Areas to protect, enhance, restore and/or maintain plant communities and habitats that are critical for endangered, threatened, or sensitive plant and animal species.
- Areas that will reduce risks and damage from a wildfire. This includes the reintroduction of fire into fire dependent ecosystems to maintain and

- enhance those ecosystems and the modification of vegetation to achieve specific land management objectives.

Planning

Prescribed Fires are defined as the application of fire, under specified conditions, in a designated area to achieve specific resource management objectives.

Prescribed Fire Planning

The Bureau's prescribed fire activities are a coordinated interdisciplinary effort supported by Resource and Fire Management. All benefitting activities will coordinate their respective roles for the planning, implementation, monitoring, evaluation, reporting, and funding of prescribed fire projects. Resource Management is responsible for managing vegetation and soils. Fire Management is responsible for identifying hazardous fuel situations and managing ignitions.

All use of prescribed fire will support land and resource management plans. The RMP or other land use plans serve as the document to initiate, analyze, and provide the basis for using prescribed fire to meet resource objectives. The Fire Management Plan (FMP) serves as the program strategy document for prescribed fire activities. The FMP captures and quantifies the overall fuels management program needs of the field office. The FMP identifies how prescribed fire, along with other fire management strategies, will be used to meet the overall land management goals identified in land use plans.

Natural resource objectives are the driving force behind the fuels management program. Although the "phase one" fire planning identified fuels management opportunities, it often does not provide the level of detail needed to move directly to prescribed fire projects. It is required that prescribed fire projects be planned and analyzed using an interdisciplinary process. Compliance with the National Environmental Policy Act (NEPA) is required for all prescribed fire projects.

The Prescribed Fire Plan is the site specific implementation document.

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 non-attainment areas (often called designated 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.

Prescribed Fire Plans

Plan Contents

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 must be implemented in compliance with the written plan. At a minimum, address each of the elements below. The size and complexity of the prescribed fire project will determine the level of detail required.

- **Cover Page:** Signature of Preparer, Signature of Reviewer(s), Signature of Technical Reviewer, Complexity Rating, Estimated Cost, EA & RIPS numbers, Plan Approval.
- **Management Summary:** Management Summary and Risk Analysis.
- **Base Data:** Resource Objectives, Fire Treatment Objectives, Constraints, Physical Description, Maps.
- **Environmental Parameters:** Environmental Parameters and Fire Prescription, Fire Behavior Calculations, Smoke Management, Monitoring.
- **Implementation:** Notifications, Organization and Equipment, Ignition and Holding, Mop Up and Patrol, Escaped Fire Plan, JHA, Public Safety, Medical Plan, Communications Plan, Go/No Go Checklist, Briefing Outline, Test Fire, Project Cost Data.
- **Reports:** Prescribed Fire Report.

There needs to be a clear understanding between agency administrators, fire management, and the Prescribed Fire Burn Boss as to which parts of the prescribed fire plan (if any) 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 a state or local policy. On-site changes to the prescribed fire plan **will not** include changes to the objectives or the fire behavior prescription. Examples of changes that might be permitted are minor boundary adjustments, or minor changes in the amount or type of holding or ignition resources required, or changes in ignition

patterns(s), techniques, or sequence. Any changes to the prescribed fire plan by the Prescribed Fire Burn Boss will be noted on the original copy of the Prescribed Fire Plan and dated and initialed by the Prescribed Fire Burn Boss.

Implementation

Obtaining a spot weather forecast, on the first day of the burn, prior to ignition, is mandatory. The prescribed fire burn boss will monitor the general forecasts and decide on the need for additional spot weather forecasts.

Note: An exception can be made for piled slash and other burns where no rate of spread outside of the burn area is expected.

The Prescribed Fire Burn Boss or other person in charge of mop up and patrol needs to review the general weather forecast and determine if a spot weather forecast is needed.

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 State Fire Management Officer (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.

Determination of Complexity

The NWCG *Prescribed Fire Complexity Rating System Guide*, NFES 2474, May 1995, is the Bureau standard for rating prescribed fire complexity. A complexity rating will be completed for each prescribed fire project. The determination of the prescribed fire complexity will be based on an assessment of **risk** (the probability or likelihood of an unexpected 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 expected events).

Classify prescribed fire projects by complexity elements using the definitions outlined in the NWCG guide. It is important to note that each of the 14 elements have distinct definitions for high, moderate, or low. These definitions must be used when preparing the rating. All of the individual elements must be rated. If a specific element does not apply to a given project, indicate it as n/a. Additional elements may be added if needed. The "Complexity Elements Work Sheet" and summary rating become an appendix to the Prescribed Fire Plan.

An initial complexity rating should be completed during the project development stage to identify items needing mitigation. These items can then be addressed during the development of the Prescribed Fire Plan. Once the Prescribed Fire Plan is near completion the final complexity rating is made and the summary rating is entered on the cover page of the Prescribed Fire Plan. The final rating should take into account any mitigation included in the plan. The mitigating measures identified in the plan should be noted in the Management Summary and Risk Assessment portion of the plan and in the JHA.

Based on the NWCG classification system, three prescribed fire complexities are possible. Any prescribed fire meeting one of the items below will be classified at the level indicated regardless of the overall rating.

- **High**–Prescribed fires (other than pile burning) in the wildland/urban interface. The wildland/urban interface is more than a area or zone where structures meet or intermingle with wildland fuels. It is a set of conditions where structures and/or other improvements are reasonably within the reach of an escaped prescribed fire. This determination must include the factors of fuel type, fire behavior prescription, topography and containment opportunities.
- **Moderate**–All aerial ignitions must be classified as at least moderate complexity
- **Low**–These types of operations typically would have few personnel assigned, have a very low threat of escape, and present a minimal risk to the people involved in the operation.

Qualifications

The Prescribed Fire Complexity System does not tie directly to the Prescribed Fire Qualifications System. The following direction will apply: **All prescribed fire projects rated as "High Complexity" will require a Prescribed Fire Burn Boss rated as RXB1 and an Ignition Specialist rated as RXI1.**

Safety & Qualifications

Safety Awareness

The safety of fire fighters and the public is the number one priority when planning and implementing a prescribed fire project. Every person involved in a prescribed fire project is responsible for identifying safety issues and concerns. It is the responsibility of each individual participating in prescribed fire activities to let management know if they do not understand their assignment or have safety concerns related to the assignment.

All personnel will be briefed prior to any prescribed fire assignment. The briefing will ensure that all people involved understand how the project will be implemented and what their assignments are. Briefings must cover safety considerations for both known site specific hazards and potential hazards. A briefing checklist must be developed and attached to the Prescribed Fire Plan. A briefing will be given for each operational period of multi-period projects.

A Job Hazard Analysis (JHA) will be completed for each prescribed fire project and attached to each Prescribed Fire Plan.

Safety Equipment

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. (See Chapter 5, Safety.)

Smoke Exposure

Exposure to smoke during prescribed fire operations can be a significant safety concern. Research has shown that smoke exposure on prescribed fires, especially in the holding and ignition positions, often exceeds that on wildfires. There are many things that prescribed fire planners and Prescribed Fire Burn Bosses can do to reduce the personnel exposure to smoke.

Planning Smoke exposure needs to be considered when planning prescribed fires. Simple things such as altering line locations can have a significant impact on smoke exposure. Placing fire lines in areas of lighter fuels or moving lines to roads or other barriers that will require less holding, patrol, and mop up will significantly reduce the smoke exposure to personnel. The identification of “Buffer or Allowable Areas” (where fire outside the main control line may not need to be aggressively attacked) is also a good method to reduce smoke exposure.

Implementation There are many techniques that can help reduce the exposure of personnel to heavy smoke. Rotating people out of the heaviest

smoke area may be the single most effective method of limiting smoke exposure. Changing firing patterns and pre-burning (black lining) during less severe conditions can greatly reduce exposure to smoke. The use of retardant, foam, or sprinklers can also significantly reduce the workload and exposure time for holding crews.

Qualifications

The NWCG has issued the *Wildland and Prescribed Fire Qualification System Guide* (PMS 310-1). This guide provides a complete review of the qualification system. There is a second publication, the Task Book Administrator's Guide, (PMS 330-1) that explains the task book process for documenting performance and certifying personnel. The BLM has additional requirements for some positions. The qualifications for each position are shown in the chart below. All BLM personnel assigned to prescribed fire operations will meet the minimum qualifications outlined in this section. This will include personnel assigned to assist other agencies even though the other agency may have established its own (lower) qualifications.

Prescribed Fire Qualifications Summary

Bold print represents BLM's additional requirements and positions.

Position	Qualified As	Required Training	Suggested Training	Physical Fitness	Position Task Book
RXM1	RXB1	None		None	Required
RXM2	RXB2	None		None	Required
RXB1	RXB2 + ICT3 **or DIVS**	S-490 **RX-450**	RX-540 RX-481 ECOSYS* FPM	Light	Required
RXB2	RXI2 + ICT4 **or DIVS**	S-390 **RX-300 RX-340 BEHAVE**	RX-450 S-381 FPM I-300	Moderate	Required
RXB3	**ICT5**	**S-290**	**S-201**	**Arduous**	**None**
RXI1	RXI2 + **STL (Any) or TFLD**	**RX-340**		Arduous	Required
RXI2	SRB (Any)	**S-234**	Ignition Devices	Arduous	Required

FEMO	FFT2	S-290 **RX-340**	S-244	Arduous	Required
Tech. Reviewer	**RXB1/ RXB2**			**None**	**None**
Rx Fire Planner		**S-390 BEHAVE RX-340**	**ECOSYS***	**None**	**None**

* ECOSYS = Fire and Ecosystem Management

The NWCG qualification standards require qualification at the ICT4 level for RXB2, and at the ICT3 level for RXB1. The BLM has added an additional way to become qualified at the Burn Boss level. Qualification at the RXB2 level may be met with qualification at the ICT4 or the TFLD level. Qualification at the RXB1 level may be met with qualification at the ICT3 or the DIVS level. If the Prescribed Fire Burn Boss is not qualified as an IC, a qualified IC will be identified in the Escaped Fire Plan. Additionally the transition from the Prescribed Fire Burn Boss to the IC needs to be explained.

Prescribed Fire Burn Boss 3 (RXB3): As a supplement to the qualifications system, the BLM has identified this position. This position supervises prescribed fire operations that are of “low complexity.” These types of operations typically would have few personnel assigned, have a very low threat of escape, and present a minimal risk to the people involved in the operation. Examples include burning piled slash, burning landings, ditch burning, debris burning, and broadcast burns of less than one acre with a minimal chance for escape.

Note: These types of operations still require a signed prescribed fire plan; however, the detail of the plan should be commensurate with the scope of the project.

Prescribed Fire Holding Specialist: The qualification for the Holding Boss position is the appropriate ICS Operations position. The Holding Boss will be qualified at the Single Resource Boss, Strike Team Leader, Task Force Leader, Division Supervisor, Operations Section Chief 2, or Operations Section Chief 1 as required by the number and mix of the resources assigned to the holding operation.

For some projects there may be no holding requirements, or the holding duties are assumed by the Prescribed Fire Burn Boss.

Prescribed Fire Planner: This is the person responsible for preparing the prescribed fire plan. The preparer may have other people assist in the preparation of the plan, but is responsible for the final plan content.

Prescribed Fire Plan Technical Reviewer: For prescribed fire projects rated as "Complex," e.g., those projects requiring an RXB1, the technical reviewer must be qualified as, or have been previously qualified, at the RXB1 level. For those Prescribed Fire Plans rated as "Moderate" or "Low," the technical reviewer must be qualified as, or have been previously qualified, at the RXB2 level. If a field office cannot complete their own technical review, the state office will ensure that a technical review is completed by a qualified person. A primary reviewer will be designated; however, it is acceptable for other specialists to review specific portions of the Prescribed Fire Plan. For example, a Fire Behavior Analyst may review the fire behavior calculations or the Aviation Officer may review the Air Operations Plan.

Field Office Manager: Mandatory training is "Fire Management Leadership." Additionally, a detailed briefing from the SFMO regarding the roles and responsibilities relating to the prescribed fire program with emphasis on the Prescribed Fire Plan approval process is required. At a minimum the manager will receive a copy of the Prescribed Fire Handbook, H-9214-1, and will review the appropriate sections with the SFMO.

Physical fitness levels are not established by the NWCG. The Bureau has established physical fitness levels as shown in the chart. The fitness levels for Prescribed Fire Burn Boss are less than that required for ICT3. If the Prescribed Fire Burn Boss is not qualified as an IC, a qualified IC will be identified in the Escaped Fire Plan. Additionally, the transition of control from the Prescribed Fire Burn Boss to the IC needs to be explained.

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, the same as for suppression qualifications. As with the suppression qualifications, an assignment at one level will maintain prescribed fire qualifications at the next higher level.

Prescribed Fire Monitoring

A monitoring plan is required as part of each Prescribed Fire Plan. It describes what data will be collected, when it will be collected, where on the prescribed fire site it will be collected, which methods will be used for each data element, and list the responsible person(s).

The requirements established for prescribed fire monitoring include weather conditions during the ignition phase, the observed fire behavior, and whether fire treatment objectives have been met. If slowly changing fuel moisture values, such as live fuel or soil moisture, are included in the prescription, actual values should also be documented.

Project Financing

Prescribed fire projects will be funded by equitable cost-sharing. Funding for the implementation of prescribed fire projects must be identified and agreed to at the field office level. It is the responsibility of each program area (non-fire) to cover its 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 management staff (except dedicated fuels management specialists) involved in prescribed fire activities are programmed in Preparedness (2810), identified in the FMP, and considered part of the most efficient level (MEL).

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 the on the ground implementation of prescribed fire projects. Additional guidance for the use of 2823 funds can be found in Chapter 15, Administration.

Current policy is that hazard pay will not be paid for any prescribed fire.

The Bureau 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 actively 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 that the burn objectives are being met and that the terms of the contract are adhered to. The BLM representative (COAR or PI) must have prescribed fire and/or wildfire qualifications equal to what the BLM would require, if a BLM Prescribed Fire Burn Boss were conducting the actual operations.

Casual Firefighter Hire Authority

The DOI has been granted the authority to hire personnel under the pay plan for emergency workers 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 Chapter 15, Administration.

Cooperation & Assistance

BLM and Other Federal Agencies

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. Coordination with other Federal agencies will occur in the planning phase for joint prescribed fire projects.

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.

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, provided 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 agreement states that “Agencies may choose to bill by mutual agreement.”

For more guidance see Instruction Memorandum No. OF&A 99-008 and Chapter 15, Administration.

Escaped Prescribed Fires

Definition

Prescribed Fire becomes a wildland fire when the Prescribed Fire Burn Boss determines that an escape has, or is likely to occur. Fire outside of the planned perimeter, or outside any planned “Buffer or Allowable Areas,” that cannot be contained with the holding forces identified in the Prescribed Fire Plan, is an escaped fire and will be declared a wildland fire. This is not fire that crosses the fire line which can be contained by resources on-site (no suppression charges will be used). If fire suppression funds (2821) are used to contain a prescribed fire, it must be declared an escaped fire.

Some Prescribed Fire Plans identify "Buffer or Allowable Areas," where a fire outside the planned perimeter will not be declared a wildland fire until it exceeds specified criteria, exceeds a stated target size, or threatens the boundary of the "Buffer or Allowable Area." In such cases, an escaped fire does not need to be declared until the criteria as stated in the Prescribed Fire Plan have been exceeded.

Once a prescribed fire becomes a wildland fire it cannot be returned to prescribed fire status.

Actions

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 wildfire, 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 Bureau prescribed fires that escape and are declared wildland fires:

- Take prompt and reasonable action to control and suppress the fire. This could include the development of a WFSA.
- Notify the BLM agency administrator responsible for the area.
- 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.
- Document the time and environmental conditions that existed when the escape occurred.
- 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.

Reviews

All escaped prescribed fires 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.

A prescribed fire that escapes and requires an expenditure of suppression funds or results in property damage, injuries, or fatalities will be investigated. Bureau Manual 1112, Safety, Paragraph 22, outlines accident investigation procedures. The following guidelines apply to escaped prescribed fire reviews.

The objectives of the prescribed fire review are:

- To prevent future escapes from occurring.
- To establish accountability.
- To determine if the Prescribed Fire Plan was adequate for the project.
- 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 the personnel involved, in regard to procedures and guidance.
- To determine the extent of prescribed fire training and experience levels of personnel involved.

Responsibilities for the review are as follows:

- Fire Management Officer. The FMO is required to make an investigation of all escaped prescribed fires either personally or through an appropriate designated investigator.
- Field Office Manager. The field office manager has the responsibility for ensuring adequate and proper investigation of all escaped prescribed fires that result in personal injuries, burn onto private or other agency land, or requiring expenditures of up to $50,000 for suppression and/or damage to property. The field office manager may appoint an investigation team or request that one be appointed consistent with Manual Section 1112, Safety, paragraph 22D, Accident Investigations.

  The field office manager will notify the state director of escaped prescribed fires meeting the above criteria within 24 hours. Copies of the completed review report will be sent to the state director, SFMO, and to the Director, Office of Fire and Aviation.
- State Director. State directors have the responsibility for ensuring adequate, proper investigation of all prescribed fire escapes resulting in serious or multiple personal injuries, significant burned area on private or other agency lands, or has an estimated expenditure of 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 above criteria within 24 hours. Copies of the completed review report will be sent to the Director, Office of Fire and Aviation.

- Director, Office of Fire and Aviation. The Director is responsible for ensuring adequate and proper investigation of all prescribed fire escapes resulting in fatalities(s), injuries 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 where suppression expenditure's and/or property damage will exceed $100,000.

The documentation required for a review are those listed below. A review team will be provided with all of the original documents related to the incident.

- Those items listed under "Actions" above.
- The Prescribed Fire Plan and all attachments.
- Documents pertaining to the qualifications and experience of the Prescribed Fire Burn Boss, Ignition Specialist, Holding Specialist, and other key overhead. This would include Red Cards, training and experience records, and position task books.
- Dispatch logs, radio logs, and any aviation records or logs.

Reports

All prescribed fires will be assigned a "Prescribed Fire Number" and will be reported on the BLM Fire Reporting System. Reports should be entered into the system within two weeks (14 days) after the completion of the project. A block of numbers has been issued by the Office of Fire and Aviation for each reporting office.

If a prescribed fire escapes and is declared a wildfire, two reports would be required. The acreage burned while the fire was considered a prescribed fire would be reported as prescribed fire acreage using the "Prescribed Fire Number."

Acreage burned after the fire was declared a wildfire would be reported as wildfire acreage using the local "Fire Number."

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 Office of Fire & Aviation to track the total costs of assists to other agencies.

Assist Prescribed Fire numbers should only be used with the 2823 subactivity.

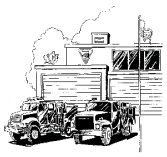
Assign one number per project where the cost must be tracked. Local offices may choose to assign one number per agency where there are numerous assists

to a single local agency. 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:
www.nifc.blm.gov/nsdu/fire_reporting/index.html.

7 – Preparedness



Preparedness

The 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, from 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.

The Fire Danger Operating Plan documents the establishment and management of the local unit fire weather system, and incorporates NFDRS fire danger modeling into local unit fire management decisions. (It should not be confused with the National Weather Service Fire Weather Operating Plan.) Fire danger operating plans are required for each dispatch unit.

A standard 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, NFDRS fuel models, and slope and climate classes. In most cases the fire danger rating areas will be the same as fire management zones (FMZs) 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 for 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 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 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 FIREFAMILY PLUS program and used locally to define fire danger input to the preparedness plan. Training for the FIREFAMILY PLUS program is available at local, regional, and national NFDRS 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 – Greenup and threshold settings are established on weather station catalogs.

Preparedness Plan

Preparedness plans are required at the national, state, and local levels. They are determined by using (at a minimum) a logical combination of the following parameters (see Table 2):

- The magnitude of a NFDRS component or index (or live fuel moisture indicator) compared to decision thresholds as described in the fire danger operating plan (i.e. Table 1);
- 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 Watches and Red Flag Warnings;

Table 2 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

* Indicates that some majority fraction (for example, 2/3 or 3/4) of the fire danger rating areas are in the Preparedness Level of the respective column, according to the magnitude of the NFDRS indicator (as seen in Table 1) computed from the weather stations in each fire danger rating (FDR) area.

Preparedness Level Action Items

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

- 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 (procurement, supply, ground support, and communication).
- Support staff availability outside of fire organization.
- Communication of Fire Weather Watch and Red Flag Warning 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 cost-effective and timely coordination of national emergency response for wildland fire suppression. This is accomplished through planning, situation monitoring, and expediting resource orders between the federal wildland fire agencies and their cooperators.

The *National Interagency Mobilization Guide* contains standard procedures that 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 amendments as issued.

Seasonal Risk Analysis

A 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 for any given area. It is important to incorporate drought indices into this assessment.

Information from a Seasonal Risk Analysis 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 (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 Seasonal 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 on-going. 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

The objective of fire severity is to mitigate losses when abnormal fire conditions occur. This occurs when fire seasons start earlier than normal, last longer than normal, or exceed average high fire danger rating for prolonged periods. Abnormal conditions exist when weather and fire history conditions used in the initial attack workload analysis for the planned organization exceed the workload.

Typical uses of severity funds are to increase prevention activities, temporarily increase firefighting staffing, pay for standby, preposition initial attack suppression forces in areas of abnormally high fire danger, provide additional aerial reconnaissance, provide for standby aircraft availability, 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 (FMPs) as the most efficient level (MEL), and thus are not an “augmentation” in funding.

The authorization to use suppression operations funds for severity preparedness 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 spend up to $100,000 for state “short term” severity needs. Shortterm needs refer to special preparedness activities that address situations anticipated to last less than a week. State Directors are responsible and accountable for ensuring that these funds are used only to meet 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, and unexpected social events such as OHV rallies) as well as 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 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 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 preparedness workloads. The following is the process to implement the use of these funds:

Request–A formal documented request should be concise, but include at a minimum, 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 Plus, 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 alltime worst. (Local current fuel moisture compared to the average, trend, and all-time worst provided by NDVI and/or Great Basin Live Fuel Moisture Project reports.) Note: data from the normalized difference vegetation index (NDVI) and the Great Basin Live Fuel Moisture Project may be a week old or older.
  - 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 its 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
Fire Prevention Team	1	average cost/day	$$$$
Type 4 engine	1	use rate per day (not FOR)	$$$$
Engine crew labor	5	average cost/day	$$$$
Engine crew travel/per diem	5	Government rate	$$$$
SEAT	1	daily minimum & hourly rate	$$$$
Type 3 IC labor	1	average cost/day	$$$$
Type 3 IC travel and per diem	1	Government rate	$$$$

Responsibilities/Approval Process

Responsibility/Actions	Responsible Official
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

Responsibility/Actions	Responsible Official
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

Labor

- Labor cost coding
  - BLM fire personnel outside their normal activation period, BLM employees who's regular salary is not funded by (2810), and Administratively Determined (AD) employees hired under an approved severity request should charge regular time and approved non-fire overtime to the severity suppression operations subactivity (2821-HT) and the requesting office's severity project number. Regular and overtime spent in fire suppression operations should be charged to suppression operations (2821-HU) with the appropriate project number.

  - BLM fire funded personnel should charge their regular planned salary (base-eight) to their home unit's location code. Overtime associated with the severity request should be charged to the severity suppression operations subactivity (2821-HU) and the requesting office's severity project number. Regular hours worked in suppression operations will require the use of the appropriate fire project code (2810-HU) with the appropriate fire project number. Overtime in fire suppression operations will be charged to the suppression operations subactivity (2821-HU) with the appropriate project number. For example:

    An Idaho Falls, Idaho fire management employee detailed to Arizona on a severity request, codes his/her base-eight to (ID 030 2810-HT); when assigned duty outside of his/her normal workday associated with the severity request, time is charged to (ID 030 2821-HT-severity project number); when assigned to fire suppression operations during his/her base eight his/her time is charged to (ID 030 2810-HU-fire project number); overtime on fire suppression is charged to (ID 030 2821-HU-fire project number).

An Idaho Falls range specialist detailed to Arizona on a severity request, codes his/her base-eight and hours outside his/her normal duty day associated with the severity request to (ID 030 2821-HTseverity project number).

All duty (both regular and overtime) associated with fire suppression operations should be charged to (ID 030 2821-HU-fire project number).

- Employees from non-federal agencies should charge their time in accordance with the approved severity request and the appropriate local and statewide agreements. 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) should follow the procedures established by their agency.

- Labor considerations:
  - All overtime is funded by severity unless assigned to a wildland fire.
  - 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 14-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

The severity request should include funding to cover expenses for any additional equipment necessary to help mitigate the severity situation. These expenses might include GSA rental and mileage, BLM-owned use rate (but not fixed ownership rate [FOR]), and commercial rentals and contracts.

Aircraft The severity request should include funding for additional aviation needs, including contract extensions, the daily minimum for call when needed (CWN) aircraft, flight time related to prepositioning, and facilities and expenses necessary to support aircraft brought on with severity funds (facility rentals, utilities, telephones, etc.).

Travel and Per Diem (Detailed personnel and pre-positioning)
Off-unit personnel assisting in severity request details are fully subsisted by the government in accordance with their agency regulations. Severity requests should include funding for lodging, government provided meals (in lieu of per diem), air fair (including returning to their home base), privately-owned vehicle mileage (with prior approval), and any other miscellaneous expenses associated with the detail.

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

Inappropriate Charges

Severity funding is not approved for the following items:

- Administrative surcharges, indirect costs, fringe benefits.
- Equipment purchases.
- The purchase of vehicles or maintenance, FOR, repairs, and 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

Unit fire prevention programs are strategic plans comprised of the most effective General (unit wide) and Specific (localized) prevention actions–developed through an assessment of the unit's risks, hazards, values, and historical fire occurrence using the RAMS (Risk Assessment and Mitigation Strategies) process (formerly WPP and PWA2).

These prevention programs, which effectively mitigate human-caused ignitions, target "average" weather conditions, historical fire occurrence, normal fire behavior, and historical human activity. Prior to periods of "above average" fire conditions, human activities, or fire severity, local/regional preparedness planning must appropriately "step-up" these prevention program activities to deal with the increased risk and threat of human-caused fires.

When Seasonal Risk Analyses indicate “increased” potential for fire behavior and/or human-caused ignitions, the predicted situation and current prevention program must be reviewed to determine the additional resources required to meet the expected situation.

An inclusive fire severity request includes a “proactive” human risk mitigation component developed through interagency preparedness planning, which identifies and activates needed prevention resources to reduce the number of wildland fire ignitions as the risk increases.

Prevention and outreach resources can be augmented by:

- Conducting a local/regional interagency fire prevention needs assessment to determine the appropriate level of prevention resources, and then obtaining these resources through details, field/state office severity requests, regional/national resource orders, etc.
- Mobilizing a “fire prevention/education team” to plan and implement immediate mitigation and outreach strategies during periods of abnormal wildland fire risk or activity. Refer to the National Interagency Mobilization Guide (Chapter 20) or regional mobilization guides for these procedures.

8 – Suppression Resources

Introduction

Leadership

Fireline Leadership is the process of influencing firefighters to accomplish their mission by providing them with purpose, direction and motivation.

Purpose You must establish priorities, explain the importance of the mission, and focus the firefighters to the task so they will function safely and efficiently.

Direction gives firefighters an orientation to the tasks to be accomplished based on priorities set by the leader.

Motivation gives firefighters the drive and desire to do everything they are capable of doing to accomplish a mission.

Principles of the Fireline Leader

- Know yourself and seek improvement.
- Be technically and tactically proficient.
- Seek responsibility and take responsibility for your actions.
- Make sound and timely decisions.
- Set a good example.
- Know your firefighters and take care of them.
- Develop a sense of responsibility in your subordinates.
- Ensure the task is understood, supervised, and accomplished.
- Build your team.
- Keep your firefighters informed.
- Use your firefighters in accordance with their level of training and experience.

Engines

Engine modules are organized, highly trained, and efficient local and national resources which can be utilized in all fire management operations, including initial attack, extended attack, and fire use activities. The primary purpose of these engine modules is to staff and manage the fire apparatus in the BLM fleet.

Policy

Each state will comply with established engine module standards. Standardized training, equipment, communications, organization, and operating procedures are required to effectively perform arduous duties in multi-agency environments and various geographic areas. Approved Class A foam concentrate will be used to improve the efficiency of water--except near watercourses where accidental spillage or over spray of the chemical could be harmful to the aquatic ecosystem.

Safety

All engine personnel will promote and maintain a passion for safety. Tactical deployment of crews will not be initiated or continued without strict adherence to the 10 Standard Fire Orders, 18 Watch Out Situations, and principles of LCES. Engine modules will receive training in hazardous materials, vehicle fires, and incidents located in the wildland/urban interface. Engine Operators must consider maintaining at least 10 percent of the pumpable capacity of the water tank for emergency engine protection and drafting.

Fire Engine Module Staffing

Type 6 and 7 engines will have a minimum crew of two – an Engine Module Leader (EML) or Engine Operator (ENOP), and an Engine Module Member.

Type 3, 4, or 5 engines will have a minimum crew size of three:

- Single resource engines will be comprised of an EML, an Engine Operator, and one or more module members.
- Task force engines will have an Engine Operator and the appropriate number of module members. The EML 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 exceed the standards listed in the *Wildland Fire Qualifications Subsystem Guide's* (NWCG 310-1). The bureau has established an Engine Operator (ENOP) position and associated task book to meet field needs. These performance requirements will be evaluated during the Preparedness Review process.

Engine Module Member

Qualifications: FFT2
Additional Required Training: I-100
Additional 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 fire 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 of, and identify repair/replacement needs as identified in NFES 1571, *Firefighters Guide*.

Hose Packs–Working knowledge of hose pack types and how to 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.

Engine Operator (ENOP)

Qualifications: CDL, FFT1
Additional Required Training: S-201, BLM Engine Operator Task Book
Recommended Training: BLM Engine Operator Course
Additional Performance Requirements: Same as for Engine Module Member, plus the following:

Stationary Pumping–Ability to set up stationary pumping operations to effectively and efficiently deliver water to a fire through a hoselay.

Mobile Attack–Ability to set up and perform running attack safely and efficiently. Understand roles and responsibilities associated with multi-engine mobile attack.

Urban Interface–Understand strategies and tactics, recognize hazards, and know agency policy with regards to urban interface situations.

Interface with Municipal Fire Apparatus–Understand 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 use engine protection lines.

Pump Theory and Operation–Ability to effectively apply this knowledge tof ire situations most commonly encountered. Must be able to troubleshoot pump/valve problems in various fire and drill situations.

Pump Package Maintenance Procedures–Ability to maintain pump package per manufacturer's/agency standards. Pump package must be in a constant state of fire readiness. Ability to troubleshoot equipment problems and develop solutions/repair needs. Ability to perform required pump test to assure pump/plumbing are operating to specifications, and maintain log.

Hydraulics–Ability to effectively apply calculations and formulas relating to fire hydraulics, including friction loss. Must understand pump capabilities and limitations (i.e. GPM, PSI, elevation gain and loss, etc.)

Simple Hoselays–Ability to perform initial lay out and extend a simple hoselay delivering water to fire safely and efficiently.

Progressive Hoselays–Ability to perform initial lay out and extend a progressive hoselay delivering water to fire safely and efficiently.

Hoselay Troubleshooting–Ability to troubleshoot hoselay evolution problems and develop solutions.

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

Foam–Ability to efficiently produce different types of foam from nozzle(s) appropriate for different fire situations. Understand the principles of compressed air foam generation and foam generation through a proportioner.

Drafting Theory–Ability to draft from external source and fill engine tank, and draft from external source 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.

Vehicle Maintenance Procedures–Ability to maintain vehicle per manufacturer's/agency standards, keeping vehicle in a constant state of fire readiness. Ability to troubleshoot equipment problems, develop solutions/repair needs.

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

Radio Use–Understand and apply bureau policy regarding radio use and protocol; be proficient at radio programming.

Engine Module Leader (EML)

Qualifications: ICT4, ENGB
Additional Training Required: I-200, S-200, S-231, S-234, S-260, S-270, S-301
Additional Performance Requirements: Same as for ENOP, plus the following:

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

Crew Qualifications/Experience–Ability to direct crews commensurate with qualifications and experience.

Interface with Municipal Fire Personnel–Understand municipal personnel capabilities and limitations, and how to effectively manage these resources in wildland fire situations.

Global Positioning System (GPS)–Ability to input and extract information for GPS point plotting and point location on resource maps and grids. Be able to navigate from point-to-point using a GPS unit.

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

- Organize crew into configurations that meet incident and tactical objectives.
- Train, test, and evaluate module members to ensure required skill and knowledge meets all performance tasks and requirements.

Physical Fitness Standards

Satisfactory completion of the Work Capacity Test (WCT) 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 elements are recommended goals for engine module members. These fitness targets have been extrapolated from *Fitness and Work Capacity*, 2nd ed. (1997), Tables 7.1 and 7.3, p. 51.

- 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
- 5 pullups
- 30 situps
- 20 pushups

Driving Standards

The following regulations, in conjunction with the work/rest guidelines (see Chapter 4, Safety), can help line officers and fire managers to provide for the safety of fire personnel who ride in or operate bureau fire apparatus.

The Federal Motor Carriers Safety Regulations apply to commercial vehicles and interstate transportation. However, the federal government is exempt from 49 CFR 390. This exemption is found in Part 390.3, General Applications, which 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 bureau manual (9210.53) defines "driving" as the operation of a fire apparatus to or from an incident on a designated highway or roadway. This language is consistent with 49 CFR 390.3.

Commercial Driver's License (CDL) Although 390.3 exempts fire vehicles, BLM and Forest Service policy requires a CDL for all operators of vehicles 26,001 GVW and over.

Driving Limits The law restricts those driver's whose assignment requires a CDL, vehicles over 26,001 lbs. and buses, to 10 hours driving time in a 15-hour duty period with 8 hours between shifts.

Drivers whose duty period is not limited by law may not exceed 10 hours of driving time in a 16 hour duty period with 8 hours between shifts, this includes light trucks and pickups.

Agency administrators or their designees can extend these hours on incidents, (e.g., first burning period, initial attack, 24-hour shifts), after they complete an analysis, and provided the extension of shift length contributes to increased firefighter safety.

Gross Vehicle Weight (GVW) It is bureau policy to have an annual certified weight slip documenting that the actual GVW (including gear, personnel, and fuel) does not exceed the manufacturer's recommended GVW. Operators of engines and water tenders must ensure the maximum certified GVW is never exceeded.

Speed Limits Posted speed limits will not be exceeded under any circumstances. In addition, engines will not exceed 65 mph or the appropriate

speed limit (whichever is more restrictive), even if the posted speed limit is greater than 65 mph.

Fire Engine Maintenance Procedure and Record Apparatus safety and operational inspections will be accomplished either on a post-fire or daily basis. Offices are required to use this document for guidelines and record keeping. 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 desired 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, that the lighting package meet NFPA 1906 standards. FMOs may equip engines in service with overhead lighting packages.

While off-road and/or 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 lighting equipment designed for emergency use, shall only be used for designated purposes during suppression operations and 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 Flammable Liquid Storage and other Flammables

OSHA regulations state that only approved metal containers, of not more than 5 gallons capacity, having a spring-closing lid and spout cover and so designed that it will safely relieve internal pressure when subject to fire exposure, be used for storing or transporting flammable liquids. (29 CFR 1910.106)

To comply with OSHA requirements and bureau directives, only OSHA approved, type II metal safety cans should replace plastic containers and traditional metal “Jerry cans.” (This does not apply to the 2-in-1 polyethylene containers used to fill chain saws nor to the Jerry cans used to fuel Mark III pumps.)

All flammable liquids and solids carried on engines will be stored in appropriate containers clearly marked as to their contents.

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.

Operational Procedures

All engines will be equipped, operated, and maintained within guidelines established by the DOT, state/local operating plans, and procedures outlined in BLM Manual H-9216, Fire Equipment and Supply Management. All personnel assigned to BLM fire engine modules will meet all gear weight, cube, and manifest requirements specified in the national mobilization guide.

Noxious Weed Prevention

To reduce the transporting, introduction, and establishment of noxious weeds on the landscape due to fire suppression activities, fire suppression and support vehicles should be cleaned at a pre-designated 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 in their home units.

Engine Inventories

An inventory of supplies and equipment carried on each vehicle is required to maintain accountability and to obtain replacement items lost on incidents.

The following chart shows the NUS minimum stocking levels required for bureau engines.

Engine Inventory

Category	Item Description	NFES #	Type	
			4 & 5	6
Fire Tools & Equipment	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 (and chaps)		1	1
	Chain Saw Tool Kit	0342	1	1
	Drip Torch	0241	2	1
	Portable Pump		*	*
Medical	First Aid Kit, 10-person	0068	1	1
	Burn Kit		1	1
	Body Fluids Barrier Kit	0640	1	1
General Supplies	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	*	*
	Hose Clamp	0046	2	1
	Gaskets (set)		1	1
	Pail, collapsible	0141	1	1
	Hose Reel Crank		*	*

Category	Item Description	NFES #	Type	
			4 & 5	6
Safety	Fire Extinguisher (5 lb)	2143	1	1
	Flagging, lime green (roll)	0258	*	*
	Flagging, yellow w/black stripes (roll)	0267	*	*
	Fuel safety can (OSHA, metal, 5-gallon)	1291	*	*
	Reflector Set		*	*
Vehicle & Pump Support	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
	Gonkulator		*	*
Radio	Portable		1	1
	Mobile		1	1
	Batteries (for portable radio)		2	2
Personal Gear (Extra Supply)	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
	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	*	*
Reducer	1½" NH-F to 1" NH-M	0009	1	1
	2.5" NH-F to 1½" NH-M	2230	1	1

Category	Item Description	NFES #	Type	
			4 & 5	6
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 Tender Operators

Water Tender Operator (Support)

Qualifications: CDL (tank endorsement), Hazmat awareness. A water tender may be staffed with a crew of one (a driver/operator) when it is used in a support role as a fire engine refill unit or for dust abatement.

Water Tender Operator (Tactical)

Qualifications: ENOP, CDL (tank endorsement).

When tactically deployed, a water tender will carry a minimum crew of two, with the same qualifications as for a Type 6 engine (one ENOP and one Engine Module Member). 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.

Smokejumpers

BLM Smoke jumpers provide wildland fire suppression and hazardous fuels reduction services to bureau and interagency land managers.

Policy

Each BLM base will comply with BLM smokejumper operations standards. The arduous duties and 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.

Smoke jumper Bases

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

Primary Spike Bases

Alaska
- Fort Yukon
- McGrath
- Palmer

Great Basin
- Grand Junction, Colorado
- Battle Mtn, Elko, Ely, Las Vegas, Reno/Stead, & Winnemucca, Nevada
- Boise & Pocatello, Idaho
- Cedar City & Salt Lake City, Utah

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. Contact the BLM smokejumpers in Boise at (208) 387-5426 or Alaska Smokejumpers in Ft. Wainwright at (907) 356-5541 for these publications.

Communications All 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 operational unit of the BLM Smoke jumpers 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 in Ft. Wainwright, Alaska.

Safety

All smoke jumpers 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 **10 Standard Fire Orders, 18 Watch Out Situations and principles of LCES**. All aviation and parachute operations will be accomplished with the highest regard for safety and in accordance with standard operating procedures and regulations.

Training

To ensure proficiency and safety, BLM Smokejumpers complete annual training that covers aspects of aviation, parachuting, fire suppression tactics, administrative procedures, and safety related to the smokejumper mission and fire operations.

The training program for first-year smokejumpers is four weeks long. Candidates 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.

The following are minimum and target ICS qualifications for smokejumpers:

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, RXB2, RXI2
GS-5 Smokejumper	FFT1, FFT2	CRWB, RXFM

Physical Fitness Standards

The national minimum standards for smokejumpers:

- 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 goals 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

In addition to these physical fitness standards, BLM smokejumpers are required to pass the Pack Test.

Interagency Hotshot Crews

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

Policy

IHC standards provide consistent 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 variety of geographic areas required of IHCs dictate that training, equipment, communications, transportation, organization, and operating procedures are consistent for all BLM IHCs.

It is bureau policy to adopt the guidance found in the *Interagency Hotshot Crew Operations Guide* for minimum requirements concerning training and qualifications, physical fitness standards, operational procedures, and transportation.

IHC Organization

Individual crew structure will be based on local needs using the following standard positions: Superintendent, Assistant Superintendent, Squad Leader, Skilled Firefighter, and Crew Member.

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 assignments for crews will not be initiated or continued without strict adherence to the **10 Standard Fire Orders, 18 Watch Out Situations, and principles of LCES**. It is the responsibility of each crew member to function safely.

Training

All members of an IHC must receive an annual minimum of 80 hours of training. All returning members of an IHC must receive 24 hours of critical training before their first assignment in a fire season. All new members of an IHC must receive the required training of an IHC crew member prior to being dispatched as a member of an IHC.

Critical training will include, but is not limited to, crew safety, risk management, firefighter safety, fire behavior, communications, and organization. The final responsibility for crew availability will rest with the Superintendent's certification to management that all training is compete.

Physical Fitness Standards

The Pack Test is the minimum physical fitness requirement for BLM IHCs.

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. Forest Service IHC length of availability varies by geographic area.

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 GVW limitations..

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 two Type 2 crews:

- Vale District Snake River Crews
- Alaska Fire Service EFF Village Crews

Snake River Valley Crews (SRV)

All assignments for the crew will be placed through the SRV crew representative (CREP). The CREP is responsible for the crew's safety and supervision and will accompany the crew on all fireline assignments and during travel to and from the

incident(s). Other responsibilities include: paperwork that pertains to the crew (i.e., time sheets, medical and accident forms); to act as a liaison between crew, the incident, and Vale Dispatch; to attend all incident briefings and relay assignments, instructions, and safety issues to the crew chief--who will brief the crew.

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

- Available for 14 days.
- Equipped with all PPE, including shelters.
- Two radios per crew. If the CREP determines additional radios are needed, the hosting unit will provide the radios.
- Handtools (if requested); no chainsaws.
- Ground transportation will be provided by the Vale District.
- One interagency resource representative (IARR) per four crews.

Alaska Fire Service EFF Crews

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—25 maintained by the Alaska Fire Service and 15 maintained by the Alaska Division of Forestry. 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, and the following:

- Available for 14 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.

Other agency sponsored Type 2 crews are available from a variety of sources ordered through the Geographic Area Coordination Center (GACC). Specific information about Type 2 crews can be obtained from the GACC.

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 14-day minimum assignments.
- Crew members 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 perform suppression and support operations on initial attack fires, extended attack, and large fires, an to manage helicopter operations in order to 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* based on helicopter type. Individual crew is based on the following positions, with career status (PFT or WAE) positions based on local need:

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

Helitack crews provide safe and efficient aviation service in support of bureau and interagency goals and objectives. All helitack crews will consider risks and take appropriate action in order to fight fire safely. Tactical decisions will be made in accordance with the **10 Standard Fire Orders, 18 Watch Out Situations, and principles of LCES**. Personnel involved in helicopter operations must follow rules, regulations, and mandates specified by the FAA, OAS, BLM, and other contractual 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 the *IHOG*, Chapter 3. Training

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 BLM Manual 9215. In addition, personnel will meet the *IHOG* training and experience requirements for each position. The following chart 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

Helitack personnel 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 provides guidance for bureau helitack and helicopter operations. The *IHOG* serves as the interagency standard for operations, and has been adopted/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 Type 3 helicopters and helitack crews are controlled and dispatched 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.

Recommended and required equipment for helitack crews and helicopters changes frequently. Consult the *IHOG* (Chapter 9) and the terms of the contract as appropriate, 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 required GVW of the vehicle(s) will be dependent upon the size class of the helicopter and the number of helitack crew members.

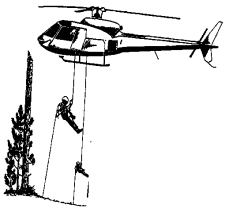
Helicopter Rappel & Cargo Let-Down

Rappel operations provide safe and efficient and helispot construction.

Policy

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

The objective is to establish standardization procedures and techniques that 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 and Qualifications

Each Spotter and Rappeller shall be certified by an approved and qualified Rappel Check Spotter. BLM Check Spotters shall be approved annually by the

state aviation manager (SAM). For more information on Rappeller initial training and certification, refer to the *IHRG*.

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.

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 and Procedure Development Process 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 IHOPS Helirappel Working Group, 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 an aerial attack systems specialist for the USFS 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*. Only personnel trained and qualified will use this procedure. Refer to the *IHRG* for more information.

Airtankers

So much forest and rangeland is remote and inaccessible to ground equipment, that land managers rely on aerial applications to assist fire suppression. Whether in the initial attack or extended attack stage of fire suppression, there is a mix of aircraft equipment, components, tank capacities, and support facilities.

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—but in the interim requires 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.

Airtanker Base Locations:

Alaska
Delta Junction
Fairbanks
Ft. Yukon
Galena
McGrath
Palmer
Tanacross

California
Bishop
Chester
Chico
Columbia
Fresno
Goleta
Grass Valley
Hemet
Hollister
Lancaster
Montague
Paso Robles
Porterville
Pt. Mugu
Ramona
Redding
Rohnerville
San Bernadino
Sonoma
Stockton
Ukiah

Eastern
Bemidji, MN
Brainard, MN
Ely, MN
Hibbing, MN

Great Basin
Battle Mountain, NV
Minden, NV
Stead, NV
Boise, ID
McCall, ID
Pocatello, ID
Cedar City, UT
Hill/Ogden, UT

Northern
Coeur d'Alene, ID
Grangeville, ID
Billings, MT
Helena, MT
Kalispell, MT
W. Yellowstone, MT

Northwest
Klamath Falls, OR
LaGrande, OR
Medford, OR
Redmond, OR
Troutdale, OR
Wenatchee, WA

Rocky Mountain
Broomfield (Jeffco), CO
Durango, CO
Grand Junction, CO
Greybull, WY
Rapid City, SD

Southwestern
Alamogordo, NM
Albuquerque, NM
Roswell, NM
Silver City, NM
Ft. Huachuca, AZ
Phoenix, AZ
Prescott, AZ
Winslow, AZ

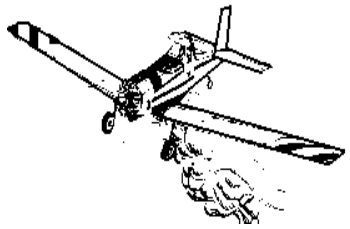
Southern
Asheville, NC
Ft. Smith, AR
Knoxville, TN
Lake City, FL
London, KY
Tallahassee, FL
Weyers Cave, WV

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 (ATCO), and other operational considerations, refer to geographic area mobilization guides and the *Interagency Airtanker Base Operations Guide*.

BLM Contract Airtankers

See the *National Interagency Mobilization Guide.*

Single Engine Airtankers



Single Engine Airtankers (SEATs) are an effective, efficient and safe BLM fire 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.

State	Location	Size	Days	
Arizona	Kingman	500 gal	70	
	St. George	500 gal	70	2 aircraft module
	St. George	500 gal	70	
	Safford	500 gal	60	2 aircraft module
	Safford	500 gal	60	
	Shoshone	800 gal	70	
	Miles City	500 gal	65	2 aircraft module
	Miles City	500 gal	65	
	Winnemucca	500 gal	60	
	Panaca	500 gal	60	
	Vale	500 gal	45	
	Prineville	500 gal	45	
	SLC District	500 gal	70	

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 with 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, position 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 an 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 PPE are addressed in the above referenced standards and will be adhered to by the both the operator and the user. SEMGs and SEAT operators will maintain a passion for safety; any noncompliance with bureau or department operational and safety standards will result in the 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 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 of taking off and landing on dirt, gravel, or grass strips (pilot must be involved in selection of the site); a support vehicle reduces turn-around times.

Volunteer fire departments have helped in many rural areas to 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 one 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 efficiently. Congested airspace, populated areas, and the limited maneuverability of large airtankers all contribute to the need for leadplanes.

Policy

A leadplane is required 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

There are a number of techniques used by leadplanes. The three most frequent are:

1) The leadplane 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 leadplane performs a low-level “show me” pass with the airtanker observing from a higher vantage orbit. In this manner the leadplane can switch positions with the airtanker and observe the drop from a higher vantage point.

3) The leadplane performs a low-level “follow me” pass, simulating the airtanker run, and identifies the target for the airtanker captain by radio, rocking its wings over the target, a smoke trail, a pull up, or by other methods of identification.

The leadplane pilot also confirms if there are firefighting personnel or others in the proposed drop area, and if so, notifies the ATGS or IC so ground resources can be warned or moved.

Organization

Leadplanes are operated by both the USFS and BLM. Forest Service leadplanes are usually Beechcraft Barons; the 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. The BLM operates a leadplane in the following locations: Alaska, Nevada (BLM pilot), Utah/Idaho (BLM pilot), and California.

Operational Considerations

Some operating practices are specific by agency:

- 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: The 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 an Airtanker Coordinator (leadplane) to supervise airtankers 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 leadplane 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 leadplanes will carry an ATGS. In those instances, the leadplane may perform both the leadplane and ATGS missions. This combination of the leadplane pilot and ATGS is an Aerial Supervision Module 1 (ASM-1). Additional training is required for an ASM to be fielded operationally. Startup/Cutoff Times

Startup/Cutoff Times

To reduce the hazards of airtanker retardant drops in the early morning and the late afternoon hours, the following limitations shall apply. These limitations apply to the time the aircraft arrives over the fire, not to the time the aircraft conducts retardant drops.

Normally, airtankers shall be dispatched to arrive over the fire not earlier than 30 minutes after official sunrise and not later than 30 minutes before official sunset.

Airtankers may be dispatched to arrive over a fire as early as 30 minutes prior to official sunrise, or 30 minutes after official sunset, provided:

- A qualified Air Tactical Group Supervisor or Airtanker Coordinator (leadplane) is on the scene; **and**
- 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 airtanker's arrival and drop activities are conducted between 30 minutes after official sunrise and 30 minutes before official sunset in the lower-48 states. In Alaska, an airtanker pilot shall not be authorize to drop retardant during periods outside civil twilight.

Air Tactical

The ATGS provides direction, coordination, and supervision to aerial suppression resources–from initial attack to project fires. The ATGS ensures safe and effective air operations to support ground operations, monitors fire behavior, and provides aerial oversight and 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 is required over an incident when operations are conducted over congested areas. An ATGS, Aerial Supervision Module (ASM),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 ASM, ATGS, ATCO (Leadplane), 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. ASM
2. ATGS
3. ATCO (Leadplane)
4. Smokejumper spotter
5. Helicopter manager

If aerial operations will continue beyond initial response, an ASM, 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, ASM, and paracargo dropping missions. These missions will be conducted with approved and qualified pilots, aircraft, and aircrew. PPE is required for all fixed-wing, low-level flights. Helmets are not required for smokejumper pilots and ASM flight/aircrew members.

PPE (flight suit or fire shirt and pants, gloves, and boots) is recommended for fire reconnaissance and air tactical missions; these mission are not low level.

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

Organization

The ATGS is an identified position in the ICS, 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 coordination and airspace management for 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 .

Operational Procedures

Currently there are four operational modes for ATGSs.

1) Aerial Supervision Module I (ASM-1). The ATGS is in the aircraft with a qualified leadplane pilot. In this module, the ATGS and ATCO missions are combined, with low-level “follow me” and “show me” passes performed as well as the command and control function of the ATGS. ASM Crew Resource Management, and 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, Alaska State DOF, and designated USFS 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 initiated by the requesting agency and approved by the BLM Aviation Program Manager. Aerial or incident complexity and environmental conditions will dictate when the module ceases low-level operations. The ASM-1 is a national resource.

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. Pilot/aircraft carding requirements must be met, and PPE is recommended.**

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 Chapter 13, Aviation Operations.)

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.

Any aircraft selected should have as a minimum of two 720 channel VHF-AM radios and one programable VHF-FM with stand alone guard; the pilot will be carded to perform the air tactical mission. Handheld VHF-FM radios are not acceptable as the only VHF-FM.

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.

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, 2nd ed., 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 watercourses 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 an 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 the device limitations.

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%, but 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 – Foam concentrates and solutions must be tested to meet minimum requirements with regard to mammalian toxicity, acute oral toxicity, acute dermal toxicity, primary skin irritation, and primary eye irritation (*International Specification for Class A Foam for Wildland Fires, Aircraft or Ground Application*, August 1993).

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.

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 and corrodes leather boots, resulting in wet feet and potentially ruined leather.

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 wildland fire suppression efforts is standard in 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 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. Personnel that mixes or handles 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 (tree limbs, rocks, etc.) that the drop could dislodge.

Environmental Guidelines – Due to the sensitivity of aquatic habitats, the application of foam and retardant 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.

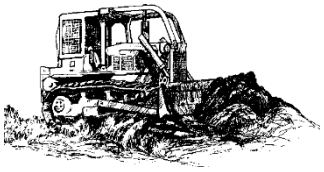
Dozers

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, principles of LCES, and fire shelter use and deployment,. While on fire assignments all operators and support crew will meet PPE requirements including the use of aramid fiber clothing, hard hats, fire shelters, etc.

Operational Procedures



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. A BLM dozer is defined as a dozer identified in a unit's fire management plan, is commonly used for initial attack, and the fixed ownership rate may be paid out of preparedness funds.

Contract or offer-for-hire dozers must also be provided with radio communications, either through a qualified dozer boss or an agency-supplied radio.

Operators of dozers and transport equipment will meet the Department of Transportation (DOT) certifications and requirements regarding the use and movement of heavy equipment–including driving limitations, CDL requirements, and pilot car use.

Physical Fitness Standards

There are no physical fitness standards for dozer operators.

Radio Communications

Good radio communications are key to safe and effective operations during incidents. Radio communications provide for the flow of tactical information needed for the command/control of personnel and resources.

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 an 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.

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.

When incident management teams are pre-positioned in a field unit or geographical area, consideration should be given to also pre-positioning a radio kit for immediate use by the team when assigned.

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 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 is 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. **The intent is not to use this frequency for local large incidents unless necessary.**

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 for use anywhere, any time. They are good choices as travel frequencies for strike teams moving between assignments. They are 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, the 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 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 an vertical position.

- Canting or tilting the radio 45 degrees lowers the effective transmitting power by half, so that 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 lose reliability. Communications equipment must be properly maintained.

9 - Initial Attack

Policy

All fire management activities will be based on firefighter and public safety, cost effectiveness, and values to be protected consistent with resource objectives, by using the full range of strategic and tactical options as described in an approved, NEPA compliant Fire Management Plan (FMP).

In areas where an approved FMP exists, naturally ignited fires may be managed to benefit resource values in accordance with the preplanned conditions and objectives outlined in the plan.

All initial attack incident commanders will have completed basic training in wildland fire cause determination, such as “Wildland Fire Cause Determination for First Responders” (P-130).

Local units will establish standard response times for all initial attack resources.

An operational briefing will be provided to all incoming fire personnel. Incoming incident commanders must place a priority on providings briefings to resources already on the scene.

Objectives

Over 90% of wildland fires are contained/controlled during initial attack. 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. Therefore, the objective of initial attack fire suppression is to provide safe operations that are consistent with an approved FMP.

Initial and extended attack incident commanders must be evaluated by managers to ensure that suppression operations safely and efficiently meet current policy and FMP objectives.

Initial Attack Dispatch

Standard Operating Procedures

Field offices with dispatching responsibility, in conjunction with their cooperators, will ensure dispatch standard operating procedures (SOPs) are developed. **Agency Administrators will ensure that an annual review verifies that required elements are updated and in place, and that written, approved procedures are fully implemented and adhered to during dispatching**

operations. (See Preparedness Review Guide for specific information on review procedures.)

There are variations in the required elements for dispatch SOPs due to many factors (i.e. activity level/complexities, interagency coordination, all-risk incidents, hazmat). However, 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 local unit fire management reference guides.

- **Organization:** chain-of-command/table of organization for local agencies and cooperators; notification process/procedures; roles/responsibilities, 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
- **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.
- **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
  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, including maps 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, etc.
- **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 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 updates; weather updates; 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, and human-caused risk or predicted lightning activity level, etc. Specific actions should also be tied to each preparedness level, such as prepositioning of suppression resources (crews, engines, airtankers, smokejumpers, etc.), the activation of local MAC Groups, making contacts with other agencies, and hiring of CWN aircraft, emergency rental equipment (EERA), or AD crews.

- **Aviation**: ordering/scheduling requirements and procedures; special use airspace; special use mission requirements; incident/accident reporting and documentation procedures; flight management/tracking procedures.
- **Dispatch Center Staffing Plan:** call-out procedures for additional personnel in emergency situations; designation of duty officer for dispatch center; shift limitations and day off/R&R policy; EFF hiring, 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.
- **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.
- **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.

At the earliest opportunity after arrival on an incident, the initial attack incident commander should give, 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, under investigation)

Fire Cause Determination Checklist

1) Take essential investigation materials to incident.

2) Make factual notes of all your actions and findings:
- 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.
- Weather observations.

3) Locate and protect the fire point of origin. (Use a GPS to record lat./long. Or UTM, depending on local policy.)

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 in relation to locations of all evidence.

7) Take photographs from all angles (include long and medium distance, as well as closeup views) of fire origin area and important evidence. Document in photo evidence log.

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.

For additional information on Fire Cause Determination procedures, see Chapter 14, Reviews and Investigations.

Operational Briefings

Procedures and Guidelines

Wildland fire personnel are not always familiar with local fuel and weather conditions, terrain, potential hazards, etc. Fire personnel not provided with information regarding the incident may be less effective, and safety may be compromised. Therefore, **it is BLM policy to brief all fire personnel who arrive at an incident, at the earliest possible time**.

Many crews arrive at a local unit/dispatch center by vehicle or by transport aircraft, and are then 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 respond directly to the incident.

If aerially delivered firefighters cannot be briefed prior to departure from base, the receiving 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/dispatch center for the briefing would cause needless delay. Documentation of operational briefings should be noted in an appropriate log.

The following Operational Briefing Checklist and Guidelines contain the **minimum** items required to brief all incoming crews, personnel, or resources. Units are encouraged to expand the minimum briefing, as appropriate, to ensure that safety and efficiency are addressed.

Operational 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		
4. Weather Conditions	Current: air temp wind speed direction rh	Forecasted: air temp wind speed direction rh
5.Command/Control	Incident Commander	
Resources on Incident		
Resources Ordered		
Communications		
Reporting Procedures		
Key Radio Frequencies COMMAND:	TACTICAL:	AIR TO GROUND:
6. Fire Behavior	Current	Forecasted
7. Aviation	Aircraft	
Hazards		
Restrictions		
8. Other		

Operational Briefing Checklist Guidelines

Note: some items on the briefing checklist may not be applicable. For example, a discussion on 1,000-hour time-lag fuels may not be necessary if such fuels do not exist on or adjacent to the incident site.

1. **Incident Status** – Provide the location (Township, Range, Section, lat./long.), estimated size, jurisdiction, and known hazards such as power lines, hazmat sites, poor driving conditions, etc.

2. **Incident Site** – Provide basic information about the site, including biome (forest, woodland, shrub steppe, etc.). Include general state of health, such as overmature, 70 percent insect infested, large areas of blowdown, flashy fuels, etc. Also, provide general sense of terrain, such as large relief with 60 percent slopes.

3. **Fuel Conditions** – Provide best estimates of live, 1-, 10- and 1,000-hour time-lag fuel moisture contents, and important NFDRS indices as they relate to fire behavior and appropriate suppression actions.

4. **Weather conditions** – Provide current observations (including wind speed and direction, air temperature, and relative humidity) and predicted or Spot Weather Forecasts. **Emphasize Fire Weather Watches and Red Flag Warnings**.(The IC should work in conjunction with dispatch to obtain and relay site weather conditions.)

5. **Command and Control** – Provide the name and 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 relating to number and types of aircraft operating in the area, including agreements, restrictions, or airspace closures.

8. **Other** – Add additional information that would improve efficiency without compromising safety.

Spot Weather Forecast

Spot weather forecasts should be requested for fires that have potential for extreme fire behavior or exceeding initial attack, or are located in areas where Red Flag Warnings have been issued. See Spot Weather form in Appendix.

The basic elements of a spot weather forecast are:

- Name fire or other project
- Control agency
- Request time and date
- Location by ¼ section
- Drainage name
- Exposure
- Size
- Elevation (top and bottom)
- Fuel type
- Fire character (ground, crown)
- Weather conditions:
  - place
  - elevation
  - observation time
  - wind direction
  - wind velocity (eye level or 20 feet)
  - dry bulb
  - wet bulb
  - remarks

Strategy and Tactics

Determining appropriate initial attack strategies and tactics must be based on the main incident and management objective–providing for firefighter and public safety. There are other factors, including fire behavior (rate of spread, fuel type(s), flame length, etc.), which along with values at risk and resources available, often dictate which strategies and tactics should be used.

Always match strategy and tactics with present and predicted fire behavior and weather conditions!

Fire Suppression Interpretations from Flame Length

Flame Length	Interpretations
Less than 4 feet	Fires can generally be attacked at the head or flanks by firefighters using hand tools. Handline should hold fire.
4 to 8 feet	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.
8 to 11 feet	Fires may present serious control problems: torching, crowning, and spotting. Control efforts at the head will probably be ineffective.
over 11 feet	Crowning, spotting, and major fire runs are probable. Control efforts at the head of the fire are ineffective.

Direct Attack The strategy is conducted directly on the flaming edge of the fire. Direct attack must start with an anchor point.

Direct Attack

Advantages	Disadvantages
There is minimal area burned. No additional area is intentionally burned.	Firefighters can be hampered by heat, smoke, and flames.
Safest place to work. Firefighters can usually escape into the burn area.	Control lines can be very long and irregular, because the line follows edge of fire.
Full advantage is taken of burn out areas.	Firefighters may accidentally spread burning material across line.
May reduce the possibility of the fire moving into the crowns of the trees or brush.	Doesn't take advantage of natural or existing barriers.
Eliminates the uncertain elements of burning out or backfiring.	Usually more mopup and patrol.

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. helps to establish control lines as part of burn out or backfiring operations. Effective strategy when fire behavior is intense and/or fire fighting resources are scarce. Indirect attack must start with an anchor point.

Indirect Attack

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.

Parallel (Flanking) Attack This strategy constructs fireline 6 to 50 feet from the fire's edge. The line is burned out immediately after construction. Parallel attack must start with an anchor point.

Parallel (Flanking) Attack

Advantages	Disadvantages
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.

Hotspotting Hotspotting is the stopping of the spread of the flaming front. The purpose of this dangerous strategy (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 in conjunction with 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 heat, 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.

Mopping Up a Fire

Priorities	Guidelines
Start work on each portion of line as soon as possible.	Start with the most dangerous line first. Work from the fireline 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 **inside** 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 **outside** 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.

For additional information on strategic and tactical guidelines and principles, see the NWCG Fireline Handbook (PMS 410-1, NFES 0065), Chapter 1, Initial Attack and Chapter 5, Safety, and the Incident Response Pocket Guide (PMS-461, NFES 1077).

Evaluation of Initial/Extended Attack ICs

Evaluation Standards

The following criterion emphasize factors that are critical for ensuring safe and efficient wildland fire suppression, and are examples for managers to use in the evaluation of initial and extended attack incident commanders.

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.

   Give operational briefings to firefighters on incident status (objectives, strategies, tactics), fuels, indices, and fire behavior, weather, resources, communications, hazards, etc. (see Briefing Checklist).Ensure that special precautions are taken when hazards exist.

   Establish effective communications and lookouts.

   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 appropriate resources to safely and effectively manage the fire.

   Communicate effectively with dispatch.

3) **Fire Suppression Operations**
   Select safe and efficient strategies and tactics that meet management objectives, without compromising adhere to the 10 Standard Fire Orders, 18 Watch Out Situations, and principles of LCES.

   Monitor weather and fire behavior, communicate changes and/or updates, and make needed adjustments to strategy and tactics.

   Communicate effectively with dispatch and supervisor. Keep dispatch informed of progress, problems, and needs. Make timely and effective

notification if fire escapes contain/control lines or has exceeded or is expected to exceed initial attack capabilities.

Provide timely and effective input into the Wildland Fire Situation Analysis (WFSA).

Determine contain and control times, when the fire is out, and demobilization plans.

4) Administrative Responsibilities
Complete forms for time, accidents, incident status or intelligence summaries, unit logs, evaluations, and other required or pertinent reports.

Brief and submit complete documentation to supervisor.

Actively participate in an analysis of:

- incident objectives
- strategies and tactics
- safety
- cost effectiveness/efficiency
- lessons learned and suggestions for improvement

10 – Extended Attack

Policy

All units will utilize the Extended Attack Complexity Analysis and the Wildland Fire Situation Analysis (WFSA) to determine the most appropriate management strategies and organization for a wildland fire that exceeds initial attack capabilities.

A unified command structure should be a consideration in all multi-jurisdiction incidents. (See Chapter 11, Incident Management.) Field Office Managers are required to personally visit an appropriate number of fires each year. (See Chapter 2, Program Roles and Performance Standards.) A checklist that can be used by managers during those visits is included in the Appendix.

Introduction

Extended attack is the phase of an incident when initial attack capabilities have been exceeded. This has historically been when the most serious accidents and injuries have occurred. All planned actions must consider fire fighter and public safety as the number one priority.

When complexity levels exceed initial attack capabilities, the appropriate ICS positions should be added to the command staff, commensurate with the complexity of the incident. Extended attack actions can overwhelm an initial attack IC, if specific ICS organizational issues are not addressed at an early stage. The Extended Attack Complexity Analysis and the WFSA assist the manager in determining the appropriate management structure to provide for safe and efficient fire suppression operations.

Type 3 Incidents

Type 3 teams (or incident command organizations) manage initial attack fires with a significant number of resources, an extended attack fire until containment/ control is achieved, or an escaped fire until a type 1or 2 team assumes transfer of command. The incident may be divided into segments, but normally would not meet the division supervisor complexity in regards to span-of-control. **Note**: Some units may have a predetermined type 3 incident management team formally designated; other units put together a type 3 organization with command and/or general staff positions filled as the need arises.

When using a type 3 team or incident command organization, a manager must avoid using them beyond the extended attack complexity level.

The command staff is normally comprised of the incident commander and a safety officer, plus two general staff positions; however, a manager must assess the hazards and complexities to determine if other positions are also needed.

Recommended Minimum Positions The following positions and qualifications should be considered when assembling type 3 IMTs. By completing an 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 ordered as part of the team.)

Positions	Qualification Requirement
Incident Commander	Incident Commander Type 3 (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 Type 3
Information	Information Officer Type 3

Extended Attack Complexity Analysis

Appraising the Situation

An Extended Attack Complexity Analysis should be used as a guide for agency administrators and/or fire managers to identify and mitigate certain complexity or safety issues by selecting a different strategy, tactic, or higher qualification of incident management personnel to safely and effectively manage the incident.

In developing this analysis, certain assumptions are made:

1) As an incident becomes more complex, the need for an incident management team or organization increases.

2) To facilitate assembling an efficient and effective organization, key managers should be involved during the early stages of complexity analysis.

3) The analysis is not a cure-all for the decision process; local fire history, current fire conditions, and management requirements must be considered.

Guidelines for Using the Extended Attack Complexity Analysis

One check in each of the five major elements would indicate a complexity level suggesting consideration of a type 2 IMT. If some 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; 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. This complexity suggests the need for a type 2 team.

The Extended Attack Complexity Analysis should be reviewed periodically to determine the level of management required.

Extended Attack Incident Complexity Analysis

Safety	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	____	____
External/Political Factors		
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	____	____

Total number of elements checked:

Extended Attack Complexity Analysis Rating

1-3	Current management sufficient. Type 3 organization should be considered.
4-6	Complexity level suggests a Type 3 team.
7-10	Consider ordering Type 2 team.

Remarks:

Prepared By: _____ **Date** _____ **Time** _____

Reviewed By: _____ **Date** _____ **Time** _____

Reviewed By: _____ **Date** _____ **Time** _____

Wildland Fire Situation Analysis (WFSA)

The 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, selects an appropriate alternative, and documents that decision.

The agency administrator, his/her representative, and the FMO or Incident Commander prepare the WFSA. The format and level of detail required depends on the specific incident and its complexity. The key is to document the decision.

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:

- 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). Note: 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 (Type 1, Type 2, or Type 3 Incident Management Team). Briefly provide 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 it the alternative is still valid. The responsible agency administrator must sign the

WFSA to document the review.

Note: The WFSA is available in an electronic format and a hard copy version.

WILDLAND FIRE SITUATION ANALYSIS (WFSA)

Wildland Fire Situation Analysis (WFSA) is a decision making process in which the agency administrator or representative describes 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.

I. Wildland Fire Situation Analysis	
A. Jurisdiction(S):	B. Geographic Area:
C. Unit:	D. WFSA #:
E. Fire Name:	F. Incident #:
G. Accounting Code:	
H. Date/Time Prepared:	
I. Attachments: ☐ Complexity Matrix/Analysis ☐ Risk Assessment ☐ Probability of Success ☐ Consequences of Failure ☐ Maps ☐ Decision Tree ☐ Fire Behavior Projections ☐ Calculations of Resource Requirements ☐ Other (Specify)	

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.

III. Alternatives			
	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).

V. Analysis Summary			
Alternatives	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

Date	Time	By	Preparedness Level	Incident Priority	Resource Availability	Weather Forecast	Fire Behavior Projections	WFSA Valid

If WFSA is no longer valid a new WFSA will be completed

11 – Incident Management

Policy

It is BLM policy to use the incident command system (ICS) to manage all incidents, and to have an operational briefing for all fire personnel on any type of incident. A delegation of authority outlining clear, obtainable objectives will be provided to the incoming incident commander.

Introduction

The ICS provides for a management/organizational structure on incidents that evolve in complexity or increase in size, whether within a few hours or over several days.

Many safety problems, organizational issues, and cost-efficiency concerns emerge as an incident transitions into a larger operation. These transitions historically have been the most dangerous phase of incident management.

Careful planning of transitions during operational periods is essential to mitigating safety issues.

Managers should strive to transition incidents at the start of a new operational period, with transfer of command and 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..

Agency Administrator

Off-Site (Coordination)	**On-Site (Command)**
–Initial Attack Dispatch	–Initial Attack (Type 4 & 5 Incidents)
–Expanded Dispatch	–Extended Attack (Type 3 Incidents)
–Buying Teams	–Type 2 Incidents
–Geographic Area Coordination	–Type 1 Incidents
–MAC Groups	–Area Command

On-Site Incident Organizations

All fires, regardless of size, have an incident commander–a single individual responsible to the agency administrator for all incident command level functions and incident activities.

Type 5 Incident

- 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 resources arrive on scene.
- Additional firefighting resources or logistical support are usually not required.

Type 4 Incident

- Command and general staff positions are not activated.
- Resources vary from a single firefighter to several resources or a task force or strike team.
- The incident is limited to one operational period in the control phase. Mopup may extend into multiple periods.
- No written incident action plan (IAP) is required. However, a documented operational briefing should be completed for all incoming resources (see Chapter 9, Initial Attack, and the Appendix).
- Role of the agency administrator:
  - Operational Plans which include Objectives and Priorities.

Type 3 Incident (Extended Attack)

- Some of the command and general staff positions may be activated, usually at the division/group supervisor and/or unit leader level.
- Resources vary from several 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:
  - Operational Plans, which include Objectives and Priorities.
  - Incident Complexity Analysis (ICA).
  - Wildland Fire Situation Analysis (WFSA).

Type 2 Incident

- 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 required for each operational period.
- 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 work assignments; 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:
  - Incident Complexity Analysis.
  - WFSA.
  - Agency administrator briefings.
  - Written delegation of authority.

Type 1 Incident

Characteristics include all of the criteria for 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 supervisor qualified personnel.
- May require the establishment of branches.

- The agency administrator will have briefings, and ensure that WFSAs and delegation of authority are updated.
- At this stage, interface with the team often takes more of the agency administrator's time.
- Use of resource advisors at the incident base is required.
- High impact on the local office occurs, requiring additional staff for office administrative and 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 means that all agencies who have jurisdictional responsibility at the incident contribute to the process of:
  - Determining overall strategies.
  - Selecting alternatives.
  - Ensuring that joint planning for tactical activities is accomplished.
  - Maximizing use of all assigned resources.
- Unified command is used when:
  - Incidents involve more than one jurisdictional boundary.
  - 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 to perform their respective missions.
  - Reduce or eliminate duplicate efforts or missions.
  - 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 objectives 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 organization established to oversee the management of multiple incidents that are each being handled by an incident management team. An AC can also oversee the management of a very large incident that has multiple IMTs assigned to it. However, an AC can be established at any time incidents are close enough that oversight direction is required among IMTs to ensure conflicts do not arise.

- The functions of an AC:
  - Coordinate the determination of incident objectives and strategies.
  - Set priorities for using 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, aviation, and logistics. Depending on the complexity of the interface between the incidents, specialists 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.

As the numbers of wildland fires, complex incidents, and the involvement of 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 to the IMT

- Ensure that Fire Cause Determination information is coordinated with the IMT.
- Complete and approve delegation of authority.
- Conduct initial briefing 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 the IMT.

- Define public information responsibilities and delegations so that all parties understand their roles. Establish standards for IMT liaison with local communities. Ensure that all appropriate public, media, and government contacts are made.
- Ensure that employee briefings occur.
- Remain involved with the IMT Information Officer.
- Ensure that you are briefed on the fire situation in enough detail to meet your needs.
- Make a comparison between “suppression costs” and “values at risk.” “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 assigning a local government liaison to the IMT.
- Consider ordering an Incident Business Advisor (IBA) to provide incident business management oversight.
- 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 responses.
- Ensure fire management staff is briefed regularly on incident status.
- Ensure the IMT addresses fire training needs.
- Ensure that rehabilitation of all effects of fire suppression is addressed by the IMT.
- Ensure that all business management 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.
- When applicable, ensure a written re-delegation of authority has been completed prior to release of the IMT.
- Provide a separate written evaluation to the IC on IMT performance.

Incident Complexity Analysis (ICA)

This document assists the agency administrator and staff to analyze the current or predicted complexity of a fire situation to determine the appropriate type of team to use. 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. Keep the analysis as part of the fire records. This document is prepared concurrently with, and attached to, a new or revised WFSA. 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.

Guide to completing the Incident Complexity Analysis

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 complexity.

4) Factor H should be considered after numbers 1-3 are completed. 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.

Factor F—External Influences

Controversial fire policy – Differing fire policies between suppression agencies when the fire involves multiple ownership is a good example.

Pre-existing controversies/relationships – 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.

Factor H—Existing Overhead

Have overhead 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 safely and efficiently due to mental or physical reasons, assistance is mandatory.

Incident 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 ____ ____

Incident Management Teams (IMTs)

All teams are ordered through the established ordering channels from local dispatch offices, geographic area coordination centers (GACCs), and the National Interagency Coordination Center (NICC).

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 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 Support Group Supervisor (ASGS)

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)
Compensation / Claims Unit Leader (COMP)
Air Tactical Group Supervisor (ATGS)

Type 1 Incident Management Teams

There are 16 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	No. of Teams
Northern Rockies	2
Rocky Mountains	1
Southwest	2
Great Basis	2
California	5
Northwest	2
Alaska	1
Southern	1

Area Command Teams

There are four national area command teams. 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)

Team Transitions/Transfer of Command

Once the decision has been made to mobilize an incident management team, the following guidelines assist transition of fire management responsibilities to incoming IMTs. This includes briefings that must be given by the agency administrator, FMO, and IC. Some information will be in writing and some may be oral. A delegation of authority and a WFSA are provided by the agency administrator to the incoming team at the briefing.

Transfer of Command Responsibilities

- The transfer of command responsibilities for an incident to a team must be as efficient and orderly as possible. The local team or organization already in place remains in charge until incoming team members are briefed by their counterparts and a delegation of authority has been signed.

- The ordering unit should specify times of arrival and transition by the incoming team, and discuss these timeframes with the incoming IC.

- The ordering unit should accomplish the following actions prior to the arrival of the incoming team:
  - Determine incident command post (ICP)/base location.
  - Order basic support equipment and supplies for the incident.
  - Secure an ample supply of appropriate maps. This is critical.
  - Determine the team's transportation needs and obtain vehicles.
  - Schedule agency administrator briefing time and location.
  - Obtain necessary information for the administrator briefing.
  - Obtain necessary communications equipment.

Transition time will depend on the complexity of the incident, the expertise of the existing team, local factors, and other issues.

Agency Administrator Briefing

This briefing should take place as soon as the incoming team is completely assembled, preferably at a location away from the incident. The WFSA and delegation of authority should be completed prior to the briefing.

The agency administrator (or designated representative) should provide, at a minimum, a written overview that covers:

- Fire Status/Information
  - Name and number(s) of incident.
  - Approximate size, location, jurisdictions, and land status.
  - Name of the current incident commander.
  - General weather conditions at the incident site.
  - Fire Behavior.
  - Fuel types.
  - Current objectives, strategies, tactics.
  - ICP and/or base locations.
  - Other use of resources which might have an impact on the incident.

- Local participation in the team organization by resource and agency representatives.

- Any information about existing or anticipated unified command organization.

- 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 or threatened and endangered species, rehabilitation requirements, etc.

- Priorities for control.

- News media procedures.
- Political considerations.
- Agreements or memorandums of understanding (MOU) in effect.
- Other agency resources or representatives already on the incident.
- 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.
  - Status of Fire Cause Determination or Investigation.
  - Hazards (Hazmat, power lines, underground gas lines, etc.).
  - Name of local and state safety manager.
- Operations and Planning:
  - Strategies.
  - Tactics.
  - Unusual local fire behavior and fire history in the vicinity of the incident.
  - Pre-attack plans available to the team.
  - Incident Status Summary (ICS-209) or Intelligence Summary 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/med-evac/lifeflight.
  - Contacts with local law enforcement agencies.

- Finance/Administration:
  - Fiscal limitations and constraints.
  - Any cost-sharing arrangements affecting the incident.
  - Contracting officer available.
  - Potential for claims/injuries.
  - Incident Business Advisor (IBA) assigned?
  - Service and Supply Plan.
  - Unit/Agency business management requirements.
  - Buying Team ordered?
  - Payment Team ordered?
  - Local Unit business contacts.
  - Incident Finance Package requirements.

Delegation of Authority

The transfer of authority for suppression actions on a fire is done through a written delegation of authority from the agency administrator to the incident commander. An IMT may manage suppression actions on a fire only after receiving a signed delegation of authority from the agency administrator. This procedure facilitates the transition between incident management levels.

The delegation of authority should contain specific, measurable objectives to be accomplished by the IMT, as well as any limitations to that authority. Measurable objectives will provide both the IMT and agency administrator a means for continual evaluation and necessary adjustments as the incident progresses.

Sample: **Delegation of Authority**
Colorado State Office
Montrose Field Office

As of 1800, May 20, 1995, I have delegated authority to manage the Crystal River Fire, number E353, San Juan Resource Area, to Incident Commander Bill Jones and his Incident Management Team.

The fire which originated as four separate lightning strikes occurring on May 17, 1995, is burning in the Crystal River Drainage. My considerations for management of this fire are:

1. Provide for fire fighter and public safety.

2. Manage the fire with as little environmental damage as possible. The guide to minimum impact suppression tactics is attached.

3. Key cultural features requiring priority protection are: Escalante Cabin, and overlook board walks along the south rim.

4. Key resource considerations are: protecting endangered species by avoiding retardant and foams from entering the stream, if the ponderosa pine timber sale is threatened conduct a low intensity under burn and clear fuels along road 312.

5. Restrictions for suppression actions include: no tracked vehicles on slopes greater than 20 percent or meadow soils except where roads exist and are identified for use, and no retardant will be used within 100 feet of water.

6. Minimum tools for use are Type 2/3 helicopters, chainsaws, hand tools and portable pumps.

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

Taking Over of an Incident by an IMT

The following are guidelines for incoming local and off-unit IMTs for transfer of fire suppression responsibilities, and for the release of IMTs. Information will be written and oral.

Incoming IC should contact the fire's unit dispatch in advance and arrange for:

- Expected support staff.
- Making contacting with agency administrator, determine briefing time and location.
- Transportation needs.

The ordering unit should do the following prior to the arrival of the incoming team:

- Obtain necessary information for the agency administrator briefing package. See checklist and sample briefing form in Appendix.

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 leave minimal environmental impact.

The rapidly increasing cost of wildland fire suppression is 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:

- Firefighter and public safety cannot be compromised.
- Evaluate suppression tactics during planning and strategy sessions to ensure they meet agency administrator objectives and minimum impact suppression guidelines (MIST). Include agency resource advisor and/or local representative.
- Discuss MIST during briefings and implement during line construction, mopup, and rehabilitation.

Minimum Impact Suppression Tactics (MIST) Implementation Guidelines

MIST emphasize suppressing a wildland fire with the least impact to the land. Actual fire conditions and good judgement will dictate the actions taken. Consider what is necessary to halt fire spread and contain it within the fireline or designated perimeter boundary, while safely manage the incident, .

Safety

- Apply principles of LCES to all planned actions.
- Constantly review and apply the 18 Watch Out Situations and 10 Standard Fire Orders.
- Be particularly cautious with:
  - Burning snags allowed to burn.
  - Burning or partially burned 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

- Select tactics, tools, and equipment that least impact the environment.
- 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.
  - Allowing fire to burn to natural barrier.
  - Consider burn out and use of “gunny” sack or swatter.
  - Constantly re-checking 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 move or roll downed material out of the intended constructed fireline area. If moving or rolling out is not possible, or the downed log/bole is already on fire, build line around and let material be consumed.

- 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.
  - Cut brush or small trees necessary for fireline construction flush to 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. 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.
  - 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 handheld).

- Light fuels:
  - Cold-trail areas adjacent to unburned fuels.
  - Do minimal spading; restrict spading to hot areas near fireline.
  - Use extensive cold-trailing to detect hot areas.

- 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 and extinguish the fire.
  - 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 a 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 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 has stopped and lines are 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 (flagging, litter, etc.).
  - Restore helicopter landing sites.
  - Fill in and cover latrine sites.

Work/Rest Guidelines

Management of crew, overhead, and support personnel rest to assure safe, productive fire suppression is the responsibility of all supervisory fire management personnel. (Refer to Chapter 4, Safety, and the *NWCG Interagency Incident Business Management Handbook*, PMS 902, NFES 2160).

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.

Incident Status Reporting

The status of the incident must be reported at least once every 24 hours. The agency administrator may require additional reporting times. Incident status is reported on the Incident Status Summary (ICS-209) or an Intelligence Summary, depending on local dispatch or geographical coordination center requirements. Time frames should meet local, GACC, and NIFC requirements.

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 IMT should have adequate rest prior to assuming control of the incident.

The outgoing team should start phasing in the local team as soon as demobilization begins. The outgoing team should not be released from the incident until agreed upon objectives are met and fire management activity is at the level and workload a local team can reasonably assume:

- Fire must be controlled or contained.
- Most line personnel and resources not needed for patrol and mopup are released.
- Incident base shut down, reduced, or in the process.
- Planning Section Chief has prepared a draft of the fire narrative for the closeout debriefing.
- Finance/Administration Section Chief should have most known finance problems resolved. Contact made with local unit administrative personnel to hand over incident finance package.
- Resource rehabilitation work completed or done to local unit's satisfaction.
- Overhead performance ratings are completed.
- Incident close-out debriefing with agency administrator. (The IMT should have a closed debriefing session prior to meeting with agency administrator.)
- Agency administrator(s) or representatives should debrief team and prepare evaluation as soon as possible after release.

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.

Team Evaluation

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, the WFSA, 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, 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 area coordination center.

Other factors to consider in a written evaluation of an IMT are:

- Orderly transition; local unit to team/team to local unit.
- Human resource management.
- Personnel safety records.
- Fiscal performance compared to WFSA predictions.
- Accountability and control of property.
- Documentation of fire costs.
- Completeness of claims investigations/documentation.
- Media relations.
- Interaction with cooperative agencies/local unit staff/neighbors/support units.
- Completeness of financial and payment documentation.
- Effectiveness of suppression damage rehabilitation.
- Orderly demobilization.
- Completeness of final fire package

Interagency Incident Team Evaluation

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 using 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 accomplishments 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 an expanded dispatch organization should be pre-identified, procured, and available for immediate setup. The following key items should be provided for:
  - Work space separate from, but accessible to, the initial attack organization.
  - Adequate office space (lighting, heating, cooling, security).
  - Communications equipment (telephone, fax, 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/Payment Teams

Buying Teams and Administrative Payment Teams may be resource ordered when incident support requirements exceed local unit capacity. These teams report to the agency administrator or other designated personnel (e.g. local 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; local resources are heavily supporting an effort; there is a significant impact due to 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 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 a 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 to:

- 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 agency 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, 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, refer to the Federal Wildland Fire Management Policy and Program Review, December 1995.

For additional fire service and homeowner information regarding wildland/urban fire refer to FIREWISE.ORG on the web.

Clarification for BLM Resources

1) Bureau resources will not be planned, 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, resources should only be used in wildland protection. Employees may only take 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. Resources 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 with 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 incorporate wildland/urban interface considerations into all agreements, operating plans, and land and fire management plans, to ensure that all interface areas are covered and state and local responsibilities are apportioned appropriately.

Sizeup

The following checklists provide for safe and efficient responses and operations. The primary considerations are firefighter safety, public safety, potential fire behavior, access, egress, nature of the threat, hazardous materials, and water supplies.

Wildland/Urban Interface Watch Outs

- Wooden construction and wood shake roofs.
- Poor access and narrow one-way canyons.
- Observe bridge limits when using heavy equipment.
- Inadequate water supply.

- Natural fuels 30 feet or closer to structure.
- Extreme fire behavior.
- Strong winds.
- Evacuations of public, livestock, pets, animals.
- 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.

Structure Protection Checklist

Don't enter a burning structure unless you are trained, equipped, and authorized! Firefighter safety and survival is the number one priority.

- Always stay mobile and wear all of your PPE.
- 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.
- 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 side with least fire threat.
- Coil and charge garden hoses.

- Check and mark HazMat, i.e., LPG, pesticides, paint storage.
- Check each home for defense. **Use Structure Triage and Structure Assessment Checklist.**

Structure Triage

There are three categories of structures:

- Those that are not threatened
- Those that are threatened
- Those that are lost or 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.

If a home becomes well involved, leave it. Move on to one you can save.

Structure Assessment Checklist

The following checklist is 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.

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, or 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

- Coordination with local law enforcement and emergency services personnel?

Estimated Resources for Protection

- Number and type engines, number water tenders, number crews, number dozers?

Other Wildland/Urban Interface Considerations

Wildland firefighters authorized to assist with municipal fire suppression operations will be trained on the potential hazards, requirements, and/or limitations of water systems, apparatus, and equipment. For example:

- The size and venting capabilities of wildland fire tanks may be incompatible with or unable to handle the high flow rates and g.p.m. outputs when hooking up to municipal hydrants.
- The limited protection of wildland PPE (especially aramid fabric) compared to bunker or turn-out gear.
- The potential damage that can be done to municipal water systems without knowing proper procedure and protocol for use. Some municipalities require approval prior to hooking up to them (water hammers, vacuum locked valve systems, etc.)

Introduction to Wildland Firefighting for the Structural Company Officer, a course developed by the National Fire Academy, covers two primary areas: what a company officer can expect when assigned to a wildland fire incident, and 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 Department of Transportation's Emergency Response Guidebook DOT P 5800.7 (1996).

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 or 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 (one-half 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

Safety – Responder safety is #1 priority.
I solation & Deny Entry – Isolate material and don't let anyone enter hazard area.
Notifications – Local, state, and federal responders and regulators.

Command/Management – Implement command. IC must be identified/assigned.
I dentification & Assessment – ID material and hazards associated with it.
Action Planning – State law requires written action plan. ICS 201 will work.

Protective Equipment – Determine appropriate level for responders.
Containment & Control – Mitigate hazardous material involved only if you are trained, equipped, and authorized.
Protective Actions – Secure area, evacuate or shelter in place.

Decontamination & Cleanup – Up to responsible party or local health department.
Disposal – Very expensive. Special permits required for hauling.
Documentation – Document everything!

13 – Aviation Operations

Introduction

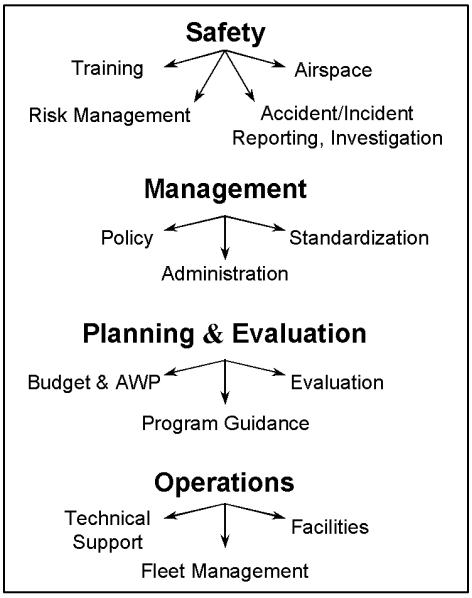
Purpose and Scope

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 operations. 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 stipulates that a state is not generally authorized to supplement this policy with more restrictive policy or procedures than the national policy, unless the policy or procedure is approved by the Director, Office of Fire and Aviation.

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 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 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 are issued 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

All aviation missions have some inherent risk. The key is to manage risk based on acceptable limits and standards. Risk management is a five-step process:

1) Identify hazards.

2) Use a hazards analysis to determine (1) the effect on personnel and equipment should the hazard be encountered, and (2) the probability that the hazard will be encountered.

3) Weigh the risk against the benefit of performing the mission.

4) Mitigate risk 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 by qualified personnel is critical to successful risk management.

Risk assessment is part of the risk management process, and can range from the simple to the 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 implementing controls to ensure success. Risk assessment must be conducted by 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, airtanker base operations, helicopter operations, leadplane 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 risk management, especially during high activity fire, each aviation manager and employee should ask the following questions:

- Is the flight necessary?
- Who is in charge?
- Are all hazards identified and have you made them known?
- Should the operation or flight be stopped 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 other aircraft in the area?
- Does the pilot accept the mission?
- Are any guidelines being ignored or policies 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 either the OAS or the USFS. These pilots 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.

An employee may refuse to participate on a flight that is unsafe.

Aviation Safety Briefing

Every 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 the required training and experience to conduct an aviation safety 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 a flight helmet or hard hat (including chin strap), flame resistant clothing, ear and eye protection, boots, and 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 downslope 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, and 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 and Congested Area Exemptions

Note: When referring to low-level flight exemptions and retardant dropping in congested areas, the terms airtanker coordinator, leadplane pilot, air tactical pilot, air tactical officer, and aerial supervision module (ASM) all mean the same thing.

Aircraft engaged in fire retardant or water drops may operate without regard for the following requirements, provided the deviation is limited to fire operations for cargo dropping, and leadplane operations associated with the aerial application of water, fire suppressants, or retardants are conducted by or for the DOI.

1) A thorough air survey for obstacles, and check for air conditions in each operating area, shall be made prior to low-level flight operations.

2) All flights below 500 feet shall be confined to immediate areas being treated or where operational requirements make such low-level flights essential.

3) All aircraft must follow planned flight course.

4) Low-level flight operations must 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 must be obtained from the appropriate air traffic controller before any flight can be made in a controlled air space.

6) Pilot will avoid creating any hazard to passengers or to persons or property on the ground.

BLM-operated airtankers can drop retardant in congested areas under the authority given in FAR Part 137.5. 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:

1) 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).

2) A qualified airtanker coordinator (leadplane pilot/air tactical pilot) will be ordered immediately on identification of the congested area and will directly supervise all airtanker drops.

3) 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 must be 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.)

4) 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.

5) The official supervising fire suppression for the responsible fire agency or designee shall advise the ASM that all non-essential people and movable property have been cleared from the area to be treated by airtankers prior to commencing airtanker operations.

6) The ASM shall be personally satisfied that no non-essential people or movable property will be placed in hazard by the proposed airtanker operation prior to ordering any airtanker drops.

7) 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.
- Airspace/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, maintain, and annually update 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, permanent helibases, airtanker 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.

Aircraft Incidents/Accidents

Incidents An aircraft "incident" results in damage which meets less than serious criteria, or in an injury not requiring medical attention (first-aid only). Examples of incidents are:

- 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 (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).

SAFECOM – Incident/Hazard/Maintenance Deficiency Reporting

The Department of the Interior agencies and USDA Forest Service have adopted a common incident/hazard reporting form 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. An electronic version of the SAFECOM form can be accessed at www.OAS.gov.

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.

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.

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 to avoid 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 8 for more operational procedure information for tactical aviation resources.

Helicopter Operations

PPE Requirements As stated in the *Interagency Helicopter Operations Guide (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 hand crews being shuttled to and from camp, primarily on 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.

Helicopter Crew Personnel The *IHOG* is the primary reference for BLM personnel conducting helicopter operations. All personnel conducting rotor-wing operations should be knowledgeable of the contents of the *IHOG* and have it available. Chapter 2 contains required experience, training, and qualification requirements for each helicopter crew position. Refer to Chapter 8 for additional information.

Helicopter Rappel *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. Aerial Ignition The *Interagency Aerial Ignition Guide (IAIG)* is the reference 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.

Airtanker Base Operations

Large airtankers 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 Airtanker Base Operations Guide* (IATBOG). Airtankers are operated by commercial vendors in accordance with FAR Part 137.

The *IATBOG* is the reference for all airtanker base operations. This guide defines and standardizes national interagency operating procedures at all airtanker bases; facilitates the exchange of personnel from other agencies during periods

of high fire activity (through standardization); provides a common interagency approach in the government's relationship with airtanker and retardant contractors; provide checklists, orientation outlines, and special instructions for personnel at airtanker bases; and provides a framework within which each airtanker base can provide supplemental site-specific guidance.

All personnel conducting airtanker base operations should know the *IATBOG* and have it available.

The startup/cutoff times as outlined in the *Interagency Leadplane Operations Guide (ILOG)* shall be followed. (These require air tactical or leadplane supervision of airtanker operations prior to or after sunrise and sunset.)

Airtanker Base Personnel The *IATBOG* identifies a generic table of organization and recommended staffing level for airtanker bases. This guide also describes the duties of various positions used at airtanker bases. There is currently no identified training for the positions at airtanker 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 Airtanker (SEAT) Operations

An *Interagency SEAT Operating Guide (ISOG)* has been approved as policy by both the BLM and USFS (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 I*nteragency Leadplane Operations Guide (ILOG)* is adopted by the Office of Fire and Aviation as operating procedures for BLM. 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 8 for policy.

The only approved fixed wing, low-level operation below 500 feet for fire suppression activities are leadplane, ASM, 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 leadplanes; facilitate the exchange of personnel for other agencies during periods of high fire activity (through standardization); and provide checklists, orientation outlines, and special instructions for leadplane pilots.

All personnel conducting or involved in leadplane operations (e.g., ATGSs) should know the ILOG and have it available.

Air Tactical Operations

The air tactical group supervisor (ATGS) is primarily responsible for coordination of aircraft operations and firefighter safety 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). The ATGS reports to the air operations branch director (AOBD), or in the absence of the AOBD, to the Operations Section Chief (OSC), or in the absence of the OSC, to the Incident Commander. **When airborne, the ATGS works for the IC or OSC, depending on the size of the incident.** When the positions are in use on an incident, the Airtanker 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 (Draft) *Interagency Air Tactical Group Supervisor Guide* has been developed in order to 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* is available from the Alaska Fire Service (AFS) or NIFC. Also see Chapter 8.

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 and Aviation 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 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: 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 (SAMs) are the primary contacts for airspace management issues.

Flight Management/Flight Following

Policy

The 9400-1a, 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 fixed-wing or helicopter 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 flight plans require approval by the immediate supervisor and final approval by the appropriate 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 direct flight 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 flights 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 above ground level AGL) 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, brief the pilot, and track point-to-point flights.

Bureau policy requires designating a fixed-wing manager for each point-to-point flight transporting personnel. The basic duties and responsibilities of the flight manager are:

1) Check pilot card to ensure qualifications are current for aircraft type.

2) Check aircraft card to ensure that aircraft is current and approved for mission.

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) Brief pilot on flight route/mission objective.

5) Pilot briefing to passengers.

6) Ensure passengers have received and understand briefing; all personnel on board are either air crew members, or authorized or official passengers.

7) Check 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 Flights Tactical missions are aircraft operations associated with initial attack of wildfires and large fire support. The flight request form, 9400-1a, is used when requesting fixed-wing or helicopters for non-tactical, non-fire missions. Special use flights require an approved special use plan. A one-time flight may use the reverse side of BLM Form 9400-1a for this purpose. The fixed-wing or helicopter manager will brief the pilot using the BLM From

9400-1a; and is responsible for the welfare of the bureau employee(s) while on the mission.

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 AGL.
- Water or retardant application.
- Parachute delivery of personnel or cargo.
- ATGS operations.
- Airtanker 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 Flights Dispatching contract or CWN helicopters for initial attack or other tactical missions, requires a resource order.

Special-use helicopter flights include the following flight missions:

- Flights conducted within 500 feet AGL.
- 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 a documented, positive hand-off. 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 a SAFECOM per the Departmental Manual.

For tactical aircraft that cross dispatch area geographic boundaries, the receiving unit is responsible to confirm arrival of the aircraft via telephone to the receiving GACC.

14 – Reviews & Investigations

Introduction

Reviews and investigations are two methods used by wildland fire and aviation managers to ensure or improve safety and efficiency, determine if any policy or operational changes should be initiated, and identify any management system failures. Reviews are usually based on improving performance and increasing safety, while investigations are conducted when an accident or incident with potential for injury or fatality occurs.

Depending on the complexity and severity, reviews and investigations may be conducted at the local, state, or national level.

Policy

Department of Interior and Bureau policies require investigation or review of all fires with entrapments and/or fire shelter deployments, multiple injuries, fatalities, escaped prescribed fires, and property or equipment damage of more than $250,000 or fires with projected large expenditures of more than $250,000.

Policy also requires each field unit to have on site a current copy of the *Prescribed Fire Handbook*, *Standards for Fire and Aviation Operations, Investigating Wildland Fire Entrapments* (Missoula Technology and Development Center), *Fireline Handbook*, and BLM Manual 1112-2, *Safety and Health for Field Operations*.

Program Reviews

Reviews address all or any aspects of wildland fire and aviation management. Reviews may focus on program oversight, safety, leadership, operations, specific incidents, preparedness, training, staffing, business practices, budget, planning, interagency cooperation, and linkage between fire and other BLM programs. Review teams will develop findings and recommendations and establish priorities for action.

Reviews may be conducted in the form of Preparedness Reviews, Fire and Aviation Safety Team Reviews, Individual Fire Reviews, or program specific reviews.

Preparedness Reviews

Wildland fire and aviation preparedness reviews are conducted prior to the fire season to help the field unit prepare for the fire season, identify operational, procedural, personnel, or equipment deficiencies, and recommend cor*rective actions. Standards for preparedness reviews are based on the BLM's Standards for Fire and Aviation Operations* and conducted according to the *Interagency Fire Preparedness Review Guide*.

Preparedness reviews consist of several major elements of which safety is the most important. These elements include the following:

- Management Direction and Consideration
- Fire Operations and Procedures
- Fire Business Management and Administrative Support
- Equipment
- Dispatch Operations
- Safety
- Facilities
- Training
- Organization and Staffing
- Planning
- Aviation Operations
- Prescribed Fire

Review teams should include line and fire managers, fire and aviation operations specialists, dispatch and logistics specialists, fire business management specialists, and other technical experts as needed (i.e., safety & occupational health specialists, contracting officers). This expertise may be internal, interagency, or contract, and include members from other states. Local-level review team membership is determined by the field manager; state-level review team membership is identified by the state director; and national review teams are identified by the Director, Office of Fire and Aviation.

Field office preparedness reviews will be conducted annually. State-wide preparedness reviews are conducted every two years. National-level reviews of each state are evaluated every four years.

Copies of preparedness review reports will be distributed to the Director, Office of Fire and Aviation and to the reviewed field office through the state director, by July 15 with notification of assistance required to correct identified critical deficiencies.

Fire and Aviation Safety Reviews

Fire and Aviation Safety Teams (FASTs) assist agency administrators during periods of high fire activity by assessing policy, rules, regulations, and management oversight relating to operational issues. They can also: 1) provide guidance to ensure fire and aviation programs are conducted safely; 2) review compliance with OSHA abatement plan(s), reports, reviews and evaluations; and 3) review compliance with the Standards for Fire and Aviation Operations.

FAST reviews can be requested through geographic area coordination centers to conduct reviews at the state and field office level. If a more comprehensive review is required, a national FAST can be ordered through the National Interagency Coordination Center.

FASTs generally include a team leader, who is either a line officer or fire program lead with previous experience as a FAST member, a safety and health manager, and other individuals with a mix of skills from fire and aviation management.

The team's report includes an executive summary, purpose, objectives, methods/procedures, findings, recommendations, follow-up actions (immediate, long-term, national issues), and a letter delegating authority for the review. As follow-up, the team will gather and review all reports prior to the end of the calendar year to ensure identified corrective actions have been taken.

Individual Fire Reviews

Fire reviews examine all or part of the operations on an individual fire. The fire may be ongoing or controlled. These evaluations may be a local, state, or national review, a "Hotline" review, an incident management team closeout and review, a wildland fire review, or an escaped prescribed fire review.

Local Level Review Should be conducted by the local manager (or designated representative) to provide the agency administrator with recommendations or accommodations pertaining to its fire program or operations.

State Level Review Convened by the state FMO (or designated representative). This review is generally conducted for any fire that results in controversy involving another agency, adverse media attention, or in large expenditures of funds ($250,000 or more).

National Level Review Convened by Director, Office of Fire and Aviation (or designate). This review is generally conducted for any fire that involves Bureau-wide or national issues, significant adverse media or political interest, multi-regional resource response, a substantial loss of equipment or property, large expenditure of funds (more than $500,000), and other fires the director wants reviewed.

Hotline Review Normally conducted by the FMO in conjunction with the incident commander, this review examines an ongoing fire to confirm decisions made daily in the WFSA, or to determine where the decision process has been faulty and what corrective actions are needed.

Incident Management Team Closeout and Review The agency administrator conducts a closeout with the IMT prior to a team's release from the incident. This ensures effective transition of the incident to the local unit, evaluates the status of fire business, and addresses issues or suggested improvements.

Wildland Fire Review Examines an **ongoing** fire to evaluate decisions or correct deficiencies; identifies new or improved procedures, techniques or tactics; compiles consistent and complete information to improve local, state, or national fire management programs; examine anomalous fire-related incidents to determine cause(s), contributing factors, and to recommend corrective actions; and determine cost-effectiveness of an operation.

Prescribed Fire Review Examines escaped prescribed fires to: prevent future escapes from occurring; establish accountability; determine if the prescribed fire plan was adequate; determine if the prescription, actions, and procedures set forth on the prescribed fire plan were followed; determine if overall policy, guidance, and procedures relating to prescribed fire operations are adequate; determine the level of awareness and understanding of procedures and guidance of the personnel involved; and determine the extent of prescribed fire training and experience of personnel involved.

Responsibilities of FMOs, field office managers, state directors, and the Director, Office of Fire and Aviation for prescribed fire reviews are outlined in the *Prescribed Fire Handbook*. Content and organization of prescribed fire review reports can also be found in the *Prescribed Fire Handbook*.

Investigations

Investigations of individual fires and/or incidents are conducted when entrapments and/or deployments occur, when one or more injuries and/or fatalities occur, or when incidents with potential for injury or fatality occur, or when property damage and/or operating loss of $250,000 or more occur.

Investigations are intended to increase safety, establish responsibility and accountability, and determine management system failures. Investigations are based on national standards and guidance established by the BLM, as described in 485 DM Chapter 7, and the Standards for Fire and Aviation Operations.

Investigations are organized into three accident categories:

1. **Entrapment** – defined by NWCG as situations where personnel are unexpectedly caught in a fire behavior-related, life threatening position where planned escape routes and safety zones are absent, inadequate, or have been compromised. Entrapments may or may not include deployment of a fire shelter for its intended purpose, and they may or may not result in injury.

2. **Incidents with Potential and/or Non-Serious Injury** – include wildland fire-related mishaps that result in a serious or non-serious injuries involving multiple personnel, near accident (which would have resulted in a serious injury or fatality), substantial loss of property (less than $250,000), or is so complex and fraught with operational discrepancies that it has the potential to produce an accident, serious injury, or fatality given a similar environment or set of circumstances that existed at the time of the incident.

3. **Wildland Fire Serious Accident** – defined as accidents where one or more fatalities occur and/or three or more personnel are in-patient hospitalized as a direct result, or in support of, wildland fire suppression or prescribed fire operations, and substantial property or equipment damage of $250,000 or more occurs.

For more information on conducting investigations, refer to USDI, Interior 485 Departmental Manual 7, *Serious Accident Investigation*; USDA Forest Service Manual 6730, *Accident Reporting and Investigation; The Interdepartmental Memorandum of Understanding between the U.S. Department of the Interior and the U.S. Department of Agriculture* dated October 26, 1995; Executive Order 12196, O*ccupational Safety and Health Programs for Federal Employees*; 29 CFR 1960.29, *Accident Investigation*; 29 CFR 1960.70, *Reporting of Serious Accidents; Investigating Wildland Fire Entrapments; Standards for Fire and Aviation Operations;* and the *Fireline Handbook*.

Investigation Process

Notification Agency reporting requirements shall be followed. As soon as an accident is verified, the following groups or individuals should be notified: agency administrator, public affairs, agency law enforcement, safety personnel, county sheriff, National Interagency Coordination Center, agency headquarters, and OSHA (within 8 hours and only if resulting in a fatality(ies) or three or more personnel are in-patient hospitalized).

After initial notification, the **National Interagency Coordination Center** (NICC) will advise the national fire director(s) or designee(s).

The **fire director(s)** or designee(s) will ensure notification to agency safety manager and agency DASHO.

Personnel Involved Treatment, transport, and follow-up care should be immediately arranged for injured and involved personnel. A critical incident stress debriefing (CISD) should be given as soon as possible. CISD teams are available through local Employee Assistant Programs (EAPs) and the NICC. Consider relieving involved supervisors from fireline duty until the preliminary investigation has been completed. Develop a roster of involved personnel and supervisors and ensure they are available for interviews by the investigation team.

Site Protection The site of the incident should be secured immediately and nothing moved or disturbed until the area is photographed and visually reviewed. Exact locations of entrapment(s), injury(ies), and fatality(ies), and the condition and location of personal protective equipment, and any damaged property or equipment must be documented.

Investigation The **24-Hour Preliminary Brief** that contains only the most obvious and basic facts about the accident will be completed and forwarded by the agency administrator responsible for the jurisdiction where the accident occurred. In the case of an entrapment and/or fire fatality, use *NWCG Wildland Fire Entrapment/Fatality Initial Report*, NFES 0869.

Following initial notification of serious accidents, agency fire director(s) will immediately dispatch an investigation team. Team composition is as follows:

- **Team Leader**—A senior bureau management official, at the equivalent associate/assistant regional/state/area/division director level. The Team Leader will direct the investigation and serve as the point of contact with the Bureau's Designated Agency Safety and Health Officer (DASHO).
- **Accident Investigation Advisor**–An experienced safety and occupational health specialist or manager, who acts as an advisor to the Team Leader, to

ensure that the investigation focus remains on safety and health issues. The Accident Investigation Advisor also works to ensure that strategic management issues are examined.

- **Chief Investigator**–A qualified accident investigation specialist responsible for the direct management of all investigation activities. The Chief Investigator reports to the Team Leader.
- **Technical Specialists**—Personnel who are qualified and experienced in specialized occupations, activities, skills, and equipment, addressing specific technical issues such as arson, third-party liability, weather, and terrain.

When assembled, the team 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** which provides more detail about the accident and may contain the number of victims, severity of injuries, and information focused on accident prevention.

Roles and Responsibilities

The **fire director(s)** or designee(s) of the lead agency, or agency responsible for the land upon which the accident occurred, will:

- Immediately appoint, authorize, and dispatch an accident investigation team.
- Ensure that the investigation team is promptly dispatched and that resources and procedures are adequate to meet the team's needs.
- Receive the factual and management evaluation reports and take action to accept or reject recommendations.
- Forward investigation findings, recommendations, and corrective action plan to the agency DASHO (the Bureau safety office is the "office of record" for reports).
- Convene a board of review (if deemed necessary) to evaluate the adequacy of the factual and management reports and suggest corrective actions.
- Ensure that a corrective action plan is developed, incorporating management initiatives established to address accident causal factors.

Agency Administrator will:

- Identify agencies with statutory/accident jurisdictional responsibilities for the incident; develop local preparedness plans to guide emergency response.
- Provide for and emphasize treatment and care of survivors.
- Ensure the incident commander secures the accident site to protect physical evidence.
- Conduct in-briefing to the investigation team.
- Facilitate and support investigation as requested.
- Implement critical incident stress management.
- Notify home tribe leadership in the case of a Native American fatality.

Reports

Within 45 days of the incident, a Factual Report (FR) and a Management Evaluation Report (MER) will be produced by the investigation team to document facts, findings, and recommendations and forwarded to the agency DASHO through the agency fire director(s).

Factual Report Contains a brief summary or background of the event, and facts based only on examination of technical and procedural issues related to equipment and tactical fire operations. This report does not contain opinions, conclusions, or recommendations. Post-accident actions should also be included in this report (i.e., emergency response attributed to survival of a victim, etc.).

Management Evaluation Report (MER) Intended for internal use only, the MER explores management policies, practices, procedures, and personal performance related to the accident. This report may contain opinions by investigators as to the cause of the accident, conclusions and observations, confidential information, and recommendations for corrective measures.

Board of Inquiry Approved in 1998, by the BLM's Director and the Executive Leadership Team, Boards of Inquiry are chaired by the Director of the Office of Fire and Aviation and used to follow up on serious situations. After determining responsibility for an incident, Boards of Inquiry can make recommendations ranging from no action to termination, or they can clear personnel of accountability or charges of wrongdoing or neglect. These boards can also make fire and aviation program recommendations.

Each investigation requires that a Factual Report and a Management Evaluation Report be prepared. The following describes suggested content and organization of each:

Factual Report–This report contains six sections: Executive Summary, Investigation, Event Chronology, Human Factors, Equipment Factors, and Environmental Factors.

- Executive Summary: Describes in one page exactly what happened (does not go into why). Includes dates, locations, times, name of fire, jurisdictions, numbers of individuals involved, etc.
- Investigation: Describes the objectives and scope of investigation; how the factual and technical investigation was organized and conducted; how information was obtained; interviews; records; who was contacted; team's roles and responsibilities; statement on delegation of authority; coordination with other agencies/entities such as NTSB, OSHA, FAA, unions, and law enforcement; and incorporates policy and guidance for background information if necessary.
- Overview: Describes in detail and with time references the events that took place prior to, during, and after the mishap. Provides background on fire or project (resource objectives or suppression), phase and length of incident, and may include agency or political issues pertaining to fire/project. Includes safety briefings, and instructions given to and actions taken by personnel. Personnel injuries or fatalities will be described, as well as post accident actions. Describes actions taken on the scene prior to the arrival of the formal investigation team (i.e., notifications, site security and protection, witness identification and statement preparation, records and document acquisition, and on-scene photography). This section may also include facts related to contractor performance, records management, operations inspections, and rescue operations. Diagrams, sketches, and photos should be included. An event timeline should be included as an appendix.
- Human Factors:
  - **Training, Qualifications and Experience**: Address whether personnel involved were trained, qualified, and experienced for the positions to which they were assigned and/or performing.
  - **Physical Fitness and Health:** Address whether personnel involved met physical fitness standards to act in the capacity to which they were assigned and/or performing. Address whether personnel involved had met work/rest ratio requirements, were properly hydrated and nourished, and had been ill recently.

- **Leadership/Decision-making:** Relate decisions and assignments that were made prior to, during, and after the accident, and whether they were clear and understood. This would include decisions made by both victims and others involved.
- **Medical Reports:** Include any autopsy or toxicology reports.
- **Communications:** Address communication system failures or overloads, types of communications, language barriers.
- **Compliance with Established Standards and Guidance:** Address whether actions and decisions met established national standards and guidance.
- **Management Oversight:** Address whether management was aware of or approved action plans, fire management plans, personnel qualifications and experience, etc.

- **Equipment Factors:** Addresses equipment suitability and performance, aircraft worthiness, laboratory analyses, maintenance records, and mechanical evaluation reports.
- **Environmental Factors:** Addresses topography, weather, fuel conditions, fire behavior (including predicted and actual, NFDRS data, Red Flag Warnings, Fire Weather Watches, and fire weather forecasts), and working surfaces and environment.
- **Appendix:** May include investigation team's delegation of authority, environmental assessments, fire activity logs, maps, burn plans, project permits, weather forecasts, fire behavior analyses, incident action plans, and organization assignments.

Management Evaluation Report—While the Factual Report explains what happened, the MER explains why it happened. This report contains the team's findings, conclusions, and recommendations and is intended for internal use only. It is divided into five sections: Findings, Causal Factors, Contributing Factors, Circumstances (if applicable), and Recommendations. An investigation process of the fault tree analysis, or equivalent, will be utilized to determine causal factors.

Findings–Findings are based on the weight of the evidence, professional knowledge, and good judgement. They are arranged in chronological order. Each finding is an essential step in the mishap sequence, but is not necessarily causal.

- Each finding is a single event or condition. Do not include any more information in each than is necessary to explain the event occurrence. Be specific and number the findings consecutively. Precede each number with the word “Finding.”
- Each finding must have a logical connection to the proceeding finding. If no logical relationship exists, the sequence of the mishap has not been correctly described. Ensure that critical events required to sustain the mishap sequence have not been omitted.
- The location of the information which supports each finding must be clearly identified. Identify the appropriate page number(s) of supporting data after each finding.
- Opinions and observations can be used as findings, if confirmation from another source can be obtained.
- **Only** findings relevant to the accident should be included into the written report.

Direct Causes (the contact with energy or hazardous material which is considered to be the force resulting in injury or other damage):

- Any behavior, act or omission, which starts or sustains a mishap occurrence.
- Base causal factors on the findings. Although the findings are significant, not all of them relate to the cause of the mishap.
- A short statement should indicate which findings were used and explain the rationale for their selection.

Indirect Causes (the unsafe [substandard] practices or conditions that allow the contact. Indirect causes do not inflict injury or cause property damage or equipment failure. Indirect causes are symptoms of basic causes.):

- Any behavior, act or omission, which contributes to but does not directly cause a mishap occurrence.
- Management actions, failures, and behavior frequently contribute to a mishap scenario, but by themselves do not cause the mishap to happen.
- Base contributory causal factors on the findings discovered during the investigation. A short statement should indicate which findings were used and explain the rationale for their selection.

Basic Causes (the personal and job factors that allow the unsafe [substandard] practices or conditions to occur.

- Attitudes of personnel
- Attention to detail
- Complacency
- Equipment utilization
- Organizational deficiencies

Recommendations—Includes feasible solutions related to the causal and contributing factors of the mishap sequence of events. Every causal and contributing factor does not need to have a recommendation.

Fire Investigations & Trespass

Introduction

Bureau policy requires any wildfire to be investigated to determine cause, origin, and responsibility. Accurate fire cause determination is a necessary first step in a successful fire investigation, and successful fire investigations are necessary in preventing unwanted wildfires. Proper investigative procedures, which occur concurrent with initial attack, more accurately pinpoint fire causes and can preserve valuable evidence that would otherwise be destroyed by suppression activities.

The Bureau, or its employees, 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.

Fire trespass refers to the occurrence of unauthorized fire on Bureau-protected lands where the source of ignition is tied to some type of human activity. For all human-caused fires where liability can be determined, trespass actions are taken to recover cost of suppression activities, land rehabilitation, and damages to the resource and improvements. Only fires started by natural causes will not be considered for trespass and related cost recovery.

Policy

The Bureau will pursue cost recovery, or document why cost recovery is not required, for all human-caused fires on public lands. The Bureau will also pursue cost recovery for other lands under fire protection agreement where the Bureau is not reimbursed for suppression actions.

For all human-caused fires where liability can be determined, trespass actions are to be taken to recover cost of suppression activities, land rehabilitation, and damages to the resource and improvements. Only fires started by natural causes will not be considered for trespass and related cost recovery.

The determination whether to proceed with trespass action must be made on "incident facts," not on "cost or ability to pay." Trespass collection is both a cost recovery and a deterrent to prevent future damage to public land. Therefore, it is prudent to pursue collection of costs, no matter how small. While it may not be monetarily cost-effective, it is an effective prevention measure. In fact, in the long term, the Government will save money. This determination must be documented and filed in the Field Office's official fire report file.

The Field Office Manager has the responsibility to bill for the total cost of the fire and authority to accept only full payment. Upon recommendation of the State Director, the Solicitor may compromise claims of the United States, up to the monetary limits ($100,000) established by law (31 U.S.C. 3711[a], 4 CFR 103-104, and 205 DM 7.1 and 7.2). Suspension or termination of the amount, in excess of $100,000, exclusive of interest, penalties, or administrative charges, will be referred by the Solicitor to the Department of Justice.

Unless specified otherwise in an approved protection agreement, the agency that has the land management jurisdiction/administration role is accountable for determining the cause of ignition, responsible party, and for obtaining all billable costs, performing the billing, collection, and distribution of the collected funds processes. The agency with the fire protection responsibility role must provide the initial determination of cause to the agency with the land management jurisdiction/administration role. The agency providing fire protection shall provide a detailed report of suppression costs that will allow the jurisdictional agency to proceed with trespass procedures in a timely manner.

Each agency's role in fire trespass billing and collection must be specifically defined in the relevant Cooperative Fire Protection Agreement. The billing and collection process for Federal Agencies is:

- A federal agency fire occurs on another federal agency's land and is determined to be a trespass fire. BLM provides assistance, and supplies costs of that assistance to the federal agency with jurisdictional responsibility for trespass billing. The responsible federal agency bills and collects trespass, and BLM then bills the federal agency and is reimbursed for its share of the collection.
- Where BLM administered land is protected by a State Agency, the billing and collection process is:

- The State bills BLM for their suppression costs. The BLM will pursue trespass action for all costs, suppression, rehabilitation, and damages, and deposits the collection per BLM's trespass guidance.

All fires must be thoroughly investigated to determine cause. Initiation of cause determination must be started with notification of an incident. The Initial Attack Incident Commander and the Initial Attack forces are responsible for initiating fire cause determination and documenting observations starting with their travel to the fire. If probable cause indicates human involvement, an individual trained in Fire Cause Determination should be dispatched to the fire.

All Incident Commanders will have basic training in wildland fire cause determination, such as the Wildland Fire Cause Determination for First Responders course (P-130).

See BLM Handbook 9238-1 for individual responsibilities of personnel at all management levels.

15 - Administration

Policy

BLM has adopted the National Wildfire Coordinating Group (NWCG) *Interagency Incident Business Management Handbook (IIBMH)* as the official procedures for handling incident business management. Supplements may be issued by field offices, geographic areas, or NWCG as long as policy or conceptual data is not changed. The *IIBMH* replaced *BLM Manual Section 1111*.

Purpose

Since the consistent application of interagency policies and guidelines is essential, procedures in the *IIBMH* will be followed. The BLM Manual provides a bridge between manual sections and the IIBMH, so that continuity of the BLM manual system is maintained and all additions, changes, and supplements are filed in a uniform manner.

Objectives

Agency administrators, incident management teams (IMTs), and incident personnel must ensure that incident operations include:

- Maintenance of proper finance, property, procurement, and personnel records and forms consistent with the *IIBMH* and agency requirements.
- Proper classification and payroll of emergency firefighting personnel.
- Uniform application of regulations pertaining to pay, leave, travel, hazard pay, commissary, injury compensation, etc.
- Acquisition of necessary equipment and supplies from appropriate sources in accordance with applicable procurement regulations.
- Managing and tracking government property to ensure accountability.

Responsibility

Chapter 40 of the IIBMH provides guidelines for coordination responsibilities of the local agency administrator and the incident management team.

Agency Administrator (AA) provides incident business management information, direction, and support to the incident commander, and oversees incident business management activities to ensure compliance with BLM policy.

Incident Commander (IC) establishes and maintains business management practices for incident management activities. The IC and assigned staff are responsible for carrying out business management activities in accordance with the *IIBMH* and agency policy.

Incident Business Advisor (IBA) replaces the comptroller as the liaison working directly for the AA. The IBA is recognized as an interagency position. The IBA serves as a "bridge" to the AA, IMT, and other incident support functions, providing a communication flow to assigned resources with the focus on successful incident business management practices.

Incident business management practices on a unit are a critical element of incident operations. Utilizing the IBA 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. The NWCG *Incident Business Advisor Guide* (PMS 314) provides guidelines for IBA activation and IBA roles, responsibilities, and qualifications.

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 project number YY00 is used with all costs associated with general program management activities not tied to a specific project. This includes things such as training, non-implementation travel, major equipment purchases, and program management. The subactivity normally utilizes the following Activity Based Costing program elements:

JM - Fuels Treatment (Project Number Mandatory) (Includes YY00)

MT - Short Term Monitoring and Evaluation (Project Number Mandatory)

HU - Base 8 (Suppression) (Project Number Mandatory)

JL - Base 8 (Rehabilitation) (Project Number mandatory)

Uses of Funds

- Includes 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 fulltime 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 species 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 as 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 sub-activity 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 1,039 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.
- 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.

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.

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. These costs 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 to 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 followed for assistance on wildland fires. 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) The 1999 Amendment to the master “Interagency Agreement for Fire Management,” between the BLM, BIA, FWS, NPS and the Forest Service, addresses several items, including reimbursement for fuels management activities. Section V, G, item 7, states:

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.

2) When another federal agency requests the 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 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 “JM," 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 in 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. (This NICC fuels project number is also used when BLM receives a request from another federal agency where the BLM doesn't have a local office, i.e., E status.)

3) 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.

4) BLM units requiring assistance from BLM units or other agencies outside of the local operating area should place orders through the normal resource ordering process. The use of BLM national resources is usually negotiated with the home unit then followed up with through the normal resource ordering process

Private Individuals and Organizations

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, what actions will be taken by each party, and how costs will be shared. In most cases the private land owner must fund a proportional share of the project cost. However, this does not need to be a monetary exchange. The private land owner(s) 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 a significant amount of fire line. In such cases there is a clear benefit to the BLM and asking the private land owner to pay a share of the cost would not be appropriate.

Procurement

Policy

Procedures for emergency incident acquisition operations can be found in Chapter 20 of the *Interagency Incident Business Management Handbook*. Agency-specific guidelines should be available from the local BLM procurement office/staff and provided to IMTs, Buying Teams, etc.

Service and Supply Plan

Local units are responsible for establishing and annually updating a Service and Supply Plan that specifically identifies supplies, equipment, and services normally required in support of an incident. A copy of the Service and Supply Plan is provided to IMTs, Buying Teams, Expanded Dispatch, etc.

Local and geographic area procurement personnel should be utilized to develop the Service and Supply Plan. Coordination among cooperating agencies should occur to avoid duplication and ensure consistency in emergency equipment rental rates and negotiated prices for goods and services.

Pre-planning will facilitate transition of IMTs, and enable both local procurement staff and Buying Teams to provide timely acquisition support to emergency incidents.

Emergency Procurement

Most initial attack and smaller incidents don't require extensive immediate procurement. Local units may have contracting officers and procurement agents who can provide emergency incident support using their delegated emergency procurement authority.

Buying Teams A buying team is ordered when incident procurement needs exceed local unit capability. The buying team reports to the agency administrator and works with local unit administrative staff to support the incident acquisition effort.

Geographic areas determine the composition of buying teams used within the geographic area.

A buying team should not be used as a defacto payment team. An administrative payment team should be resource ordered to meet incident and local unit payment needs.

Detailed information on buying teams can be found in the IIBMH, Chapter 20, Acquisition, and Chapter 40, Incident Business Coordination.

Incident Contracting Officers (ICO) The BLM has delegated limited procurement authority to personnel meeting ICO requirements. ICOs may establish Emergency Equipment Rental Agreements (EERAs) using an established geographic area supplement for equipment rates.

Purchase Cards and Convenience Checks The resource order and request number must be included on all convenience check and purchase card receipts. Local units should establish policies regarding documentation requirements and authorization to use the purchase card and/or convenience checks for emergency incident procurement. These requirements must be communicated to local unit and assigned incident personnel.

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 for aircraft are those provided through the Office of Aircraft Services (OAS). 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. Other contracts include meals, lodging, fuel, equipment, and service contracts.

NIFC Contracts NIFC establishes mandatory contracts for use by federal wildland firefighting agencies for airtankers, type 1 and 2 helicopters, transport, retardant, and mobile food and shower services. The *National Interagency Mobilization Guide* describes ordering procedures for these contracts.

Commissary Contract The National Mobile Commissary Services Contract has been established for use by all federal and state agencies, but it is not a mandatory source. See the *IIBMH*, Chapter 20, Acquisition, and Chapter 10, Section 14, Commissary, for additional information.

Injury Compensation

Policy

BLM policy provides for prompt medical attention to all injured or ill incident personnel. All forms and documentation needed to protect the individual's rights must be completed and sent to the appropriate home unit. It is the responsibility of the employee, supervisor, incident commander, and the agency administrator to ensure policy and procedure are followed. Detailed information on coverage, medical treatment authorization, and forms completion can be found in the *IIBMH*, Chapter 10, Section 15.

Federal Employees and Casuals

The Federal Employees Compensation Act (FECA) provides worker's compensation coverage for federal employees and casuals (EFF, AD, Emergency Worker). FECA is administered by the Officer of Worker's Compensation Programs (OWCP). The incident management team ensures prompt medical treatment is provided, and appropriate forms and documentation are completed. The local unit is responsible for forwarding original forms to the individual's home unit. The individual's home unit is responsible for submitting reportable claims to OWCP.

Non-Federal Personnel

Contractors and their employees, inmate crews and their custodians, National Guard mobilized by a governor's order, active duty military personnel, and state personnel are not covered by federal worker's compensation. Medical treatment may be provided in accordance with the terms of contracts and agreements.

State worker's compensation programs authorize medical care and treatment for state personnel. State worker's compensation coverage varies from state to state.

Contact an agency representative or the individual's home unit to determine required forms. Use federal forms, if necessary, to document the injury/illness and authorize medical treatment.

Agency Provided Medical Care (APMC)

Local units may establish agreements with medical facilities (physicians, hospitals, clinics, pharmacies, etc.) to provide initial emergency medical care to

emergency incident personnel. The local unit is responsible for paying the provider for APMC services. These costs are separate from OWCP and are chargeable to the incident.

The local unit coordinates establishment of APMC services and documentation requirements with the IMT Finance/Administration Section Chief.

An APMC Authorization and Medical Report, FS-6100-16, is used to authorize and document medical treatment. **Do not** issue a CA-16, Request for Examination and Treatment, for APMC.

Detailed information regarding APMC can be found in *IIBMH*, Chapter 10, Section 15.

Hiring of Casuals

Policy

The Pay Plan for Emergency Workers authorizes and provides directions for the hiring of emergency firefighters (EFF, AD, casuals, and emergency workers). The Pay Plan is updated annually and distributed as an Instruction Memorandum and as an exhibit to the Interagency Incident Business Management Handbook, Chapter 10, Section 13. The conditions for hiring casuals are clearly stated, and include conditions for hiring additional personnel for an ongoing emergency incident (including rehabilitation); hiring additional personnel for an anticipated increase in fire activity; replacing suppression personnel currently assigned to other fires; hiring personnel for fire use hazardous fuel reduction activities; and conditions for allowing personnel to attend basic fire training for up to 80 hours.

Pay Plan

Rates of pay are set on a regional basis for AD-1 to 4 and a maximum rate set for AD-5. Geographic areas establish AD-5 rates for significant positions. Local units may negotiate AD-5 rates for positions not covered in a geographic area supplement for AD-5 rates. Casuals are paid straight time for all hours worked; no premium pay is authorized. Casuals are not eligible for unemployment benefits. Effective January 1, 1999, the Internal Revenue Service required that federal and state income tax be withheld from emergency firefighter wages.

Local units are responsible for providing casuals the opportunity to complete federal and state tax withholding forms.

Casual Payroll

BLM casuals are payrolled through an Assistant Disbursing Officer (ADO), utilizing the EFF Pay program developed and maintained by the Alaska Fire Service. Local units are responsible to forward completed federal and state tax

withholding forms to the designated ADO for entry into the EFF Pay system. Failure to complete and timely submit federal and state tax withholding forms will result in taxes being withheld at the highest rate. Casuals are provided an Earnings Statement with each pay check. The Earnings Statement includes current and year-to-date payroll and withholding information.

Use of Pay Plan for Hazardous Fuel Reduction

The Pay Plan for Emergency Workers may be used to hire personnel for fire use hazardous fuel reduction projects, and 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.

Cache Management

The BLM manages two National Interagency Support Caches (NISC), located at NIFC in Boise, Idaho and at the 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 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:.

NFES#	Description	QTY	Unit of Issue
	Fireline Tools		
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
	Water Handling		
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
	PPE & Safety		
0169	Shelter, fire, w/case	_____	EA
	Miscellaneous		
0022	Bag, sleeping, cloth, washable 3 lb fill	_____	EA
1309	Longline kit, w/remote hook	_____	KT

Note: all items reported will conform to refurbishment standards set forth in NFES 2249, Fire Equipment Storage and Refurbishment Standards.

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 Items Include cache items considered to have a useful life expectancy greater than one incident. High percentages of return for these item 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% for water handling accessories, helicopter accessories, tents, and camp items such as heaters, lights, lanterns, tables, and chairs.

20% for hose, tools, backpack pumps, sleeping bags, pads, and cots.

30% for personal protective equipment.

Consumable Items 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, IMTs 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 IIBMH. 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 dispersement.

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*. Documentation 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 a 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 BLM Manual H-9216-1, *Fire Equipment and Supply Management*.

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 that balances 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 Fire Equipment

Management Business Center (NBC) 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 equipment which effectively meets 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 is therefore 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 the 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 – 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 – 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 maintenance 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 the 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.

S A F E N E T

"a ground safecom program"

Purpose:

The SAFENET has three primary purposes: (1) to provide immediate reporting and correction of unsafe situations or close calls in wildland fire; (2) to provide a means of sharing safety information throughout the fire community; and (3) to provide long-term data that will assist in identifying trends.

SAFENET Submission:

1. **Anyone** may initiate a SAFENET for the purpose of reporting an unsafe condition, unsafe procedure, or near hit. In order for the SAFENET originator to receive notification of corrective action the originator's name should be included on the form. However, it is important to know that SAFENET may be submitted anonymously in accordance with 29 CFR 1960.

2. In order to ensure the most immediate corrective action, SAFENET should be submitted to one of the following, in the order shown: (1) the supervisor; (2) local fire management officer; (3) fireline safety officer; (4) incident commander; (5) agency administrator. Since the primary purpose of SAFENET is to initiate corrective action, the desired reporting is to the immediate supervisor who can most effectively and quickly take corrective action. However, the originator has the right (under 29 CFR 1960) to submit SAFENET to any level of the organization.

SAFENET Review:

Step 1. Anyone receiving a SAFENET is responsible for initiating action to correct the unsafe situation. Normally, this corrective action can most effectively be taken by the supervisor or the incident management team. In some cases it may be necessary for the local fire management officer or agency administrator to take corrective action. In some unusual cases, it may be necessary for the action to be taken at the state/regional or national level.

Step 2. The individual taking corrective action must document that action on the SAFENET. The reviewer will then contact the SAFENET originator (if a name has been provided) to notify that corrective action has been taken. That notification will also be documented on the SAFENET.

Step 3. Once the corrective action has been taken and the originator notified, the agency administrator will be notified through the local safety manager or fire management officer. Following review by the agency administrator, the SAFENET will be forwarded to the state/regional fire management officer (within 7 days).

Step 4. The state/regional fire management officer is responsible for any necessary follow up on corrective actions and dissemination of information to other fire program managers across the five federal wildland agencies. The state/regional fire management officer will make copies of the SAFENET for own files and send a copy to the state/regional safety manager.

Step 5. The original SAFENET will be submitted to **SAFENET, P.O. Box 16645, Boise, ID 83715-6645.**

S A F E N E T

Wildland Fire Safety & Health Network

Report unsafe situations in wildland and prescribed fire operations.

The purpose of SAFENET is:
(1) to provide immediate reporting and correction of unsafe situations or close calls in wildland fire;
(2) to provide a means of sharing safety information throughout the fire community;
(3) to provide long-term data that will assist in identifying trends.
Submitting a SAFENET is not a substitute for on-the-spot correction(s).

When filing a SAFENET:
You are encouraged to submit it to your supervisor for immediate corrective action;
You have the option to submitting SAFENET to any level of the organization
(local FMO, fire safety officer, incident commander, agency administrator) for corrective action;
If you submit SAFENET directly to the national center electronically,
you are encouraged to provide a copy to your supervisor;
You have the right to report unsafe conditions anonymously, in accordance with 29 CFR 1960.

Reported by: Name (optional)_____ Phone_____

Agency/Organization_____ Date Reported__

Δ EVENT

Date_____ Local Time_____
Incident Name & Number _____
State_____ Jurisdiction/Local Unit _____

Incident Type:	☐Wildland	☐Prescribed	☐Wildland Fire for Resource Benefit	☐All risk	☐Training
Activity	☐Fireline	☐Support	☐Transport to/from		
Stage of Incident:	☐Initial Attack	☐Extended Attack	☐Transition/Transfer of Command	☐Mop up	☐Demob

Position title _____
(Firefighter, division supervisor, facilities unit leader, etc.)

Task _____
(Line construction, structure protection, camp activities, etc.)

Management Level _____
(Type 5, 4, 3, 2, 1)

Resources involved _____
(Crew equipment, overhead, etc.)

Δ SAFETY/HEALTH ISSUE

Brief description of concern/condition or potential issue:

Δ CONTRIBUTING FACTORS

☐Fire behavior	☐Equipment	☐Communications	☐Situation Awareness	
☐Fatigue	☐Environmental	☐Performance	☐Other Human Factors	☐Other

Δ ENVIRONMENT

Describe: (weather, fire behavior, fuels, terrain, footing, road condition, etc.)

Δ NARRATIVE

Describe in detail what happened and the resulting safety/health issues:

Δ SITUATION REVIEW

Reporting Individual: please list anything that, if changed, would prevent this safety issue in the future:

Δ CORRECTIVE ACTION

What do you suggest to ensure this does not happen again?

Corrective action taken by:_____ Date_____

Originator notified by:_____ Date_____

Filed electronically at www.nifc.gov ☐ Yes ☐ No Date _____

Hard copies should be mailed to SAFENET, P.O. Box 16645, Boise, ID 83715-6645

Reviewers: Identify, implement, and document action taken in a timely manner. Imminent danger issues will be addressed immediately. Other safety-related performance issues will be addressed as soon as possible and the final reviewer will notify originator of action taken. SAFENET should be received at the state/regional level within seven days of completion, and at the national office within 30 days.

Reviewer_____ Date_____

Reviewer_____ Date_____

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

OFFICE CODE:	**POSITION TITLE:**

BRIEF DESCRIPTION OF WHAT POSITION REQUIRES EMPLOYEE TO DO

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

Part B. TO BE COMPLETED BY APPLICANT
(typewrite or print in ink)

NAME (last, first, middle)	**SOCIAL SECURITY NO.**	**SEX** ___ MALE ___ FEMALE	**DATE OF BIRTH**

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	I CERTIFY THAT ALL THE INFORMATION GIVEN BY ME IN CONNECTION WITH THIS EXAMINATION IS CORRECT TO THE BEST OF MY KNOWLEDGE AND BELIEF
(If your answer is "YES" explain to the physician performing the examination)	(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
EYESIGHT: 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_2 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

U.S. Department of the Interior Bureau of Land Management JOB HAZARD ANALYSIS Field Office/Work Group	Date: Page 1 of 4 Supervisor:	New: ☐ Revised: ☐ Reviewed by: (Safety Mgr) 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. Provide prospective test subjects information about the test and describe how to prepare for it.
		2. 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.
		3. 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.
		4. Test Administrators monitor subjects for distress during test. Test Administrator is to terminate test if indicated by level of subject distress.
		5. Provide prospective test subjects official time for fitness training where policy permits.
		6. Schedule tests when environmental conditions are most favorable.
		7. Have a person currently qualified in first aid and CPR (with first aid supplies and equipment) on site when testing is done.
		8. Have unit medivac plan and make sure Test Administrators know how to activate it.
		9. Make sure test subjects do not exceed a walking pace.
		10. 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.

BASIC JOB STEPS	POTENTIAL HAZARDS	SAFE JOB PROCEDURES
		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.
		2. Where possible, schedule tests for the most favorable environmental conditions. Use the Heat Stress chart, *Fitness and Work Capacity*, Second Edition, (p. 29). 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.
		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 stress is 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.

BASIC JOB STEPS	POTENTIAL HAZARDS	SAFE JOB PROCEDURES
		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.
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.

Risk Assessment/Mitigation
For Firefighters Working Around Ordnance

It is essential all firefighting operations around ordnance be planned with the utmost consideration for safety. Missions can be accomplished safely, *provided* that a high degree of pre-planning and risk management is applied. Firefighters should use the following risk/mitigation matrix.

	Description	Mitigation
Operations with Precautions (Increasing Risk)	Less than 3" long and ½" diameter	• Do not touch • Flag or identify at eye level • Notify supervisor and Explosive Ordnance Disposal (EOD), if available • Move personnel 10 feet minimum • Do not approach from front or back of cartridge • Continue operations
	3" to 3 feet in length	• Do not touch • Do not transmit with radio, receive only • Verbally notify supervisor and adjoining forces • Move personnel 300 feet minimum before using radio • Flag area, notify EOD • Continue operations
	Greater than 3 feet in length	• Do not touch • Do not transmit with radio, receive only • Verbally notify supervisor and adjoining forces • Move personnel 1000 feet minimum before using radio • Flag area, notify EOD • Continue operations
NO GO	All other ordnance	• Verbally notify supervisor and adjoining forces • Do not transmit with radio; receive only • Move personnel 1000 feet minimum before using radio • Flag area • Notify Operations and EOD for further instruction • NO GO
	Any ordnance within 1 mile of or in a red zone*	• NO GO until clearance by EOD

* The red zone is the designated ordnance impact zone, active or inactive.

General Safety Rules:

- Don't allow curiosity to prevent safe operations
- Metallic sounds during line construction should be investigated immediately
- Ordnance inside fire perimeter is more sensitive after exposure to heat
- Any doubts, ask first!

SPOT WEATHER FORECAST

WS FORM D-1 (12-86) Pres. By WSOM D-41

FIRE WEATHER SPECIAL FORECAST REQUEST
(See reverse for instructions)

U.S. DEPARTMENT OF COMMERCE
NOAA
NATIONAL WEATHER SERVICE

I. REQUESTING AGENCY WILL FURNISH

1. NAME OF FIRE OR OTHER PROJECT	2. CONTROL AGENCY	3. REQUEST MADE TIME†	DATE

4. LOCATION (By ¼ Sec - Sec - Tnshp - Range)	5. DRAINAGE NAME	6. EXPOSURE (NE, E, SE, etc)

7. SIZE OF PROJECT	8. ELEVATION* TOP	BOTTOM	9. FUEL TYPE	10. PROJECT ON: ☐ GROUND ☐ CROWNING

11. WEATHER CONDITIONS AT PROJECT OR FROM NEARBY STATIONS (See example on reverse)

PLACE	ELE-VATION	OBS TIME†	IND 20 FT.	IND EYE LEVEL	TEMPERATURE DRY	TEMPERATURE WET	‡ (Leave Blank) RH	‡ (Leave Blank) DP	REMARKS (Indicate rain, thunderstorms, etc. Also, wind condition and 10ths of cloud cover.)

12. SEND FORECAST TO:	PLACE	VIA	ATTN: (Name, if applicable)

II - FIRE WEATHER FORECASTER WILL FURNISH:

13. FORECAST AND OUTLOOK:
(*Specify Wind - 20 foot or Eye Level)*

TIME† AND DATE:

DISCUSSION:

BURN PERIOD	SKY COVER	TEMPERATURE	HUMIDITY	WIND ☐ EYE-LEVEL ☐ 20-FOOT DIRECTION	WIND VELOCITY	INDICES
☐ TODAY (sunrise to dusk) ☐ THIS AFTERNOON (noon until dusk) ☐ THIS EVENING (4 p.m. until dusk) ☐ TONIGHT (sunset until sunrise)	☐ MOSTLY SUNNY ☐ FAIR ☐ PARTLY CLOUDY ☐ MOSTLY CLOUDY ☐ CLOUDY ☐ VARIABLE	_____°F ☐ HIGH ☐ LOW ☐ RANGE	_____% ☐ MAXIMUM ☐ MINIMUM ☐ RANGE	_____ ☐ UPSLOPE ☐ DOWNSLOPE	_____MPH GUSTS____MPH	
☐ TODAY (sunrise to dusk) ☐ THIS AFTERNOON (noon until dusk) ☐ THIS EVENING (4 p.m. until dusk) ☐ TONIGHT (sunset until sunrise)	☐ MOSTLY SUNNY ☐ FAIR ☐ PARTLY CLOUDY ☐ MOSTLY CLOUDY ☐ CLOUDY ☐ VARIABLE	_____°F ☐ HIGH ☐ LOW ☐ RANGE	_____% ☐ MAXIMUM ☐ MINIMUM ☐ RANGE	_____ ☐ UPSLOPE ☐ DOWNSLOPE	_____MPH GUSTS____MPH	
OUTLOOK FOR _____	☐ MOSTLY SUNNY ☐ FAIR ☐ PARTLY CLOUDY ☐ MOSTLY CLOUDY ☐ CLOUDY ☐ VARIABLE	_____°F ☐ HIGH ☐ LOW ☐ RANGE	_____% ☐ MAXIMUM ☐ MINIMUM ☐ RANGE	_____ ☐ UPSLOPE ☐ DOWNSLOPE	_____MPH GUSTS____MPH	

NAME OF FIRE WEATHER FORECASTER	FIRE WEATHER OFFICE

III - REQUESTING AGENCY WILL COMPLETE UPON RECEIPT OF FORECAST

IV - FORECAST RECEIVED:	TIME†	DATE	NAME

Explanation of Symbols {

† Use 24-hour clock to indicate time. Example: 10:15 p.m.=2215; 10:15 a.m.=1015

* For concentrations (as groups of lightning fires) specify "Concentration"; then give number of fires and size of largest. If concentrations are in more than one drainage, request special forecast for each drainage.

‡ No entry necessary. To be computed by the Fire Weather Forecaster.

Initial Attack and Extended Attack
Incident Debriefing Format

Incident Commander

List of Debriefing Attendees

Start Date and Duration of Incident

Date of Debriefing of Incident

Fire Name and Number

Brief synopsis of fire behavior and narrative of the Incident

How were incoming resources briefed, via radio, personal contact, stand up briefing, and how often were they held?

Tactics used for Suppression. Were they effective? If not what were the options that were considered or employed.

Were there any injuries, close calls, or safety issues that happened?

Was aviation support used? If so was it effective, how much retardant or water drops used?

Was dispatch responsive to your needs?

Were there any radio communication issues?

Were spot weather forecasts requested and were they accurate?

If the Incident was transition to a different complexity was the Incident

Commander present and available at the initial briefing for the team taking over the Incident? Was a 201 completed by the Incident Commander?

Was a complexity analysis completed for the Incident? Who completed it? (Attach a copy to this report).

Are there issues that need statewide attention?

Incident Briefing Package Checklist

- ☐ Report of Incident Dispatch Action
- ☐ Resource, Overhead, and Equipment Order Forms completed to date
- ☐ Incident Status Summary, ICS-209 ____/____/____
- ☐ Five sets of topographic maps covering the incident area and areas which might be affected by the incident and five local road maps or atlases
- ☐ Incident Area Aerial Photo(s)
- ☐ Local plans or documents containing emergency actions; e.g., Land, Pre-attack, Disaster, Suppression Plans
- ☐ Fire Weather Forecast
- ☐ WFSA for Incident
- ☐ Agency Administrator's Delegation of Authority to the Incident Commander
- ☐ Agency Administrator's Briefing to the Incident Management Team Form
- ☐ Unit Service and Supply Plan
- ☐ Local Key Contact Phone List

Agency Administrator's Briefing to Incident Management Team

General Information

Name of Incident:	Type of Incident:
Incident Start Date: Time: Cause:	Approximate Size of Incident: Location:
General Weather Conditions:	
Local Weather or Behavioral Conditions:	
Land Status:	
Local Incident Policy:	
Resource Values Threatened:	
Private Property or Structures Threatened:	
Capability of Unit to Support Team (Suppression and Support Resources):	

Command Information

Written Delegation of Authority
Agency: Resource Advisor: Agency Administrator's Representative:
Transition
Name of Current Incident Commander: Time Frame for Team to Assume Command: Date: Time: Recommended Local Participation in IMT Organization: Current IC and Staff Roles Desired after Transition:
Other Incidents in Area:
Other Command Organizations (Unified/Area/MAC):
Local Emergency Operations Center (EOC) Established:
Trainees Authorized:
Legal Considerations (Investigations in Progress)

Command Information Continued

Known Political Considerations:
Sensitive Residential and Commercial Developments, Resource Values, Archeology Sites, Roadless, Wilderness, and Unique Suppression Requirements:
Local Social/Economic Considerations:
Private Representatives Such as timber, Utility, Railroads, and Environmental Groups:

Incident Information

IIO Organization Reports To	
Incident Commander:	Agency Administrator:
Local Public Affairs:	Other:
Provide Incident Information Updates to	
Unit FMO:	Expanded Dispatch:
Local Public Affairs:	Other:

Safety Information

Accidents and Injuries to Date:
Condition of Local Personnel:
Known Hazards:
Injury and Accident Reporting Procedures:

Planning Section

General Information
Access to Fax and Copy Machines: Access to Computers and Printers:
Existing Pre-Attack Plans:
Other Nearby Incidents Influencing Strategy/Tactics/Resources:
Training Specialist Assigned or Ordered: Training Considerations:

Planning Section Continued

Situation Unit
General Weather Conditions/Forecasts: Fire Behavior: Local Unusual Fire Behavior and Fire History in Area of Fire: Fuel Type(s) at Fire: Fuel Type(s) Ahead of Fire:

Resources Unit	Refer to Attached Resource Orders:
Personnel on Incident (General): Equipment on Incident (General): Resources on Order (General): Incident Demobilization Procedures:	

Operations Section

Priorities for Control, Wildland Fire Situation Analysis Approved:
Current Tactics:
Incident Accessibility by Engines and Ground Support:
Air Operations Air Tactical Group Supervisor: Airtankers Assigned: Effectiveness of Airtankers: Air Base(s): Telephone:

Operations Section Continued

Air Operations

Helicopters Assigned:

Helibase Location:

Crash/Rescue at Helibase:

FAR 91.137 Assigned (Describe):

Flight Hazard Map Available/Know Hazards in Area:

Smoke/Visibility Conditions:

Aviation Safety Team Assigned or Ordered:

Logistics Section

Facilities Unit

ICP/Base Pre-Plans: Yes No

ICP/Base Location:

Catering Service/Meals Provided:

Shower Facilities:

Security Considerations:

Incident Recycling:

Supply Unit

Duty Officer or Coordinator Phone Number:

Expanded Dispatch Organization:

Supply System to be Used (Local Supply Cache):

Single Point Ordering:

Logistics Section Continued

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

Local Telecom Technical Support:

Ground Support Unit

Route to ICP/Base:

Route From ICP/Base to Fire:

Medical Unit

Nearest Hospital or Desired Hospital:

Nearest Burn Center, Trauma Center:

Nearest Air Ambulance:

Finance Section

Name of Incident Agency Administrative Representative: Name of Incident Business Advisor (If Assigned): Agreements and Annual Operating Plans in Place: Jurisdictional Agencies Involved: Need for Cost Share Agreement:

Cost Unit
Fiscal Considerations: Cost Collection or Trespass: Management Codes in Use:

Finance Section Continued

Procurement Unit
Buying Team in Place or Ordered: Contracting Officer Assigned: Copy of Local Service and Supply Plan Provided: Is all Equipment Inspected and Under Agreement: Emergency Equipment Rental Agreements
Compensation/Claims Unit
Potential Claims: Status of Claims/Accident Reports:
Time Unit
Payroll Procedure Established for T&A Transmittal:

Sample Questions
For Fire Site Visits
by Agency Administrators

Management Direction

___ Who is the incident commander? If the fire is being managed under Unified Command, are all commanders present? Is the incident operating smoothly?
___ What is the incident organization?
___ What is the current situation? What has been damaged or is at risk?
___ Have you received adequate direction for the management of the incident? Is an Wildland Fire Situation Analysis required/still valid?
___ What are the incident management objectives? Constraints? Probability of success?
___ Are the Incident Action Plan tactics realistic and achievable with current resources?
___ Is a resource advisor needed?
___ What are you estimates of suppression costs?
___ What are the incident commander's concerns?
___ What are the local social, economic, and political issues?
___ Are there rehabilitation needs?
___ What can I, as the agency administrator, do to help?

Safety

___ What are your safety concerns?
___ Are these concerns resolved? If not, what needs to be done?
___ What is the general safety attitude and emphasis?
___ Have you assessed the potential hazardous situations and determined if the fire can be fought safely?
___ Have you applied the Fire Orders, Watchout Situations, and Lookout, Communication, Escape routes, Safety zones (LCES) process in selecting safe and effective strategies and tactics?
___ Have you effectively briefed firefighters of hazards, safety zones, escape routes, and current and expected weather and fire behavior?
___ Is the safety officer position filled? If not, how is this function being addressed?
___ Are you monitoring work schedules to ensure adequate rest? Are you meeting the standard work/rest guidelines?
___ Have you provided for adequate rest, food, water, and health services for all personnel?
___ Are all the fire personnel qualified for the positions they hold, and are they physically able to perform?
___ Have you had any injuries or accidents?

Fire Suppression Operations

___ What is the fire weather forecast (present and extended)?
___ What is the fire behavior potential?
___ Are fire personnel briefed on incident objectives, strategies, tactics, organization, communications, hazards, and safety principles?
___ Are the strategy and tactics based on current and forecast weather?
___ Are strategy and tactics safe, effective, and consistent with management's objectives and accepted fire policies and procedures?
___ Do you have effective communication on incident and with dispatch?
___ Are you monitoring weather and fire behavior to make needed adjustments to strategy and tactics?
___ Are you using tactical aircraft? Do you have an assigned air tactical group supervisor?
___ Is aircraft use safe, effective, and efficient?
___ If the fire escapes initial attack, what will your role be in developing the Wildland Fire Situation Analysis?

Administration

___ Do you have any administrative concerns?
___ What arrangements have you made to complete time reports, accident forms, fire report, etc.?
___ Did all orders and procurement go through dispatch?
___ Do you have any outstanding obligations?
___ Are all rental agreements and use records properly completed?
___ How did the fire start? If human-caused, has an investigation been initiated to determine the cause and develop a trespass case?
___ Do you know of any current or potential claims?

Dispatch Office

___ Is the incident receiving fire weather and fire behavior information?
___ Is the incident getting the resources ordered in a timely manner?
___ Is dispatch adequately staffed?
___ What are the local area and national Preparedness Levels? How do they affect this fire?
___ Are the elements identified at the various Preparedness Levels being considered?
___ What are the current local, area and national fire situations?
___ What is the priority of existing fires and how are the priorities being determined?