Chapter 09
Preparedness

A. Introduction

1. The Agencies maintain appropriate levels of preparedness to meet fire management objectives. Preparedness is based on the assessment of fuel and weather conditions from the National Fire Danger Rating System (NFDRS), or for interior Alaska, from the Canadian Forest Fire Danger Rating System (CFFDRS) and the other factors that affect fire management decision making. Preparedness Plans, Seasonal Risk Analyses, and severity funding are based, at a minimum, on the conclusions from decision aides presented in locally produced fire danger rating operating plans.

B. Fire Danger Rating Operating Plan

1. Fire Danger Rating Operating Plan

A fire danger rating operating plan is a fire danger applications guide for agency users at the local level. A fire danger rating operating plan documents the establishment and management of the local unit fire weather station network and describes how fire danger ratings are applied to local unit fire management decisions. Fire danger rating operating plans may be packaged as either stand-alone documents or as part of a larger planning effort such as a fire management plan. Fire danger rating operating plans include, but are not limited to, the following minimum components:

a. **Roles and Responsibilities**
Defined for those responsible for maintenance and daily implementation of the plan, program management related to the plan, and associated training. Training for development of fire danger rating areas is available through NWCG-sponsored NFDRS courses.

b. **Operational Procedures**
This section establishes the procedures used to gather and process data in order to integrate fire danger ratings into decision processes.

The network of fire weather stations whose observations are used to determine fire danger ratings is identified. Station maintenance schedules are defined as appropriate.

NFDRS offers several choices of fuel model and output to the user. Distinct selections of fuel model and index/component are appropriate for different management decisions (such as internal

readiness or industrial and public restrictions). The choice of NFDRS fuel model and index or component used to determine fire danger ratings to support particular decisions is explained in this section.

NFDRS requires periodic management in order to produce appropriate results that are applied in a timely manner. Some daily observation variables (such as state of the weather, fuels wet flags) are entered manually. This procedure (often called "taking the weather") also initiates the calculation of daily and forecasted outputs in the Weather Information Management System (WIMS) and ensures data storage in the National Interagency Fire Management Integrated Database (NIFMID). These efforts are coordinated with the local National Weather Service fire weather meteorologist to provide timely forecasted NFDRS outputs. Observed (afternoon) and forecasted (tomorrow) NFDRS outputs are communicated daily. Live fuel moisture model inputs (such as herbaceous vegetation stage, season code, greenness factor) are adjusted seasonally in WIMS (http://famweb.nwcg.gov/) at appropriate times. Decision points (such as percentiles, discussed in paragraph d. below) are determined in FireFamily Plus and adjusted annually in WIMS and/or other fire danger platforms.

c. **Fire Danger Rating Inventory**
Identifies basic components of the operating plan such as, dispatch response areas, protection units, administrative units, fire history, land management planning direction, standards and guidelines, etc; aggregates NFDRS fuel models, slope classes (topography), and weather/climatology into fire danger rating areas; validates the existing weather station network and identifies any additional stations to support danger rating needs.

d. **Climatic Breakpoints and Fire Business Thresholds**
Climatic breakpoints and fire business thresholds are used to define fire danger inputs for management decisions in each fire danger rating area or group of areas. 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 climatic breakpoints for staffing level and adjective fire danger rating.

1) The Staffing Level is used to make daily internal fire operations decisions. A unit can operate with anywhere from 3 to 9 levels of staffing. Most units typically use 5 (1,2,3,4,5) or 6 (1,2,3-,3+,4,5). Staffing Level is a direct

output of the danger rating processor and is based on one of the following:

a) NFDRS (Burning Index, Energy Release Component, Spread Component, or Ignition Component)
b) Keetch-Byram Drought Index

1) Additional Considerations:
   a) Palmer Drought Index or other drought index
   b) Live Fuel Moisture (calculated or sampled)
   c) Canadian Forest Fire Danger Rating System
   d) Soil Moisture
2) Adjective Rating (low, moderate, high, very high, extreme) is based on the NFDRS index or component used to compute staffing level and the ignition component. It is a general description of fire danger for the purpose of informing the public. Adjective ratings are computed automatically in the Weather Information Management System (WIMS) based on NFDRS parameters provided by local fire managers.
3) Climatic breakpoints and fire business thresholds are established to provide NFDRS-based decision points for all appropriate management responses. Climatological breakpoints are points on the cumulative distribution of one fire weather/fire danger index without regard to associated fire occurrence/business. For example, the value of the 90th percentile ERC is the climatological breakpoint at which only 10 percent of the ERC values are greater in value. The percentiles for climatological breakpoints are predetermined by agency directive as shown below.
   a) BLM – 80th and 95th percentiles
   b) FWS – 90th and 97th percentiles
   c) NPS – 90th and 97th percentiles
   d) USFS – 90th and 97th percentiles
4) It is equally important to identify the period or range of data analysis used to determine the agency percentiles, as well as what percentiles are used. The actual calculated percentile values for 12 months of data will be different from the percentile values for the fire season. Year round data should be used for percentiles for severity type decisions, and percentiles based on fire season data for staffing levels and adjective fire danger.
5) Fire business thresholds are values of one or more fire weather/fire danger indexes that have been statistically related to occurrence of fires (fire business). Generally the

threshold is a value or range of values where historical fire activity has significantly increased or decreased.

6) Climatic breakpoints and fire business thresholds are developed with NFDRS software, such as FIREFAMILY PLUS, and are applied to appropriate NFDRS processors, such as WIMS, to determine daily staffing levels and adjective ratings. Training for the FIREFAMILY PLUS program is available at local, regional, and national NFDRS courses.
7) Applications for climatic breakpoints and fire business thresholds include:
   a) Public Information
   b) Public/Industrial Use Restrictions
   c) Staffing Levels
   d) Severity Requests
   e) Situational Awareness
   f) Predictive Services
   g) Fire Planning
   h) Pre-Positioning
   i) Dispatch Levels
   j) National Fire Management Analysis System (NFMAS)
   k) National Preparedness Levels
   l) Local Preparedness Levels
   m) Resource Allocation
   n) Resource Prioritization
   o) Rx Fire Complexity Analysis

C. Fire Danger Pocket Card for Firefighter Safety

The Fire Danger Pocket Card is used to communicate information on fire danger to firefighters. The prime objective of fire danger rating is to provide a measure of the seriousness of local burning conditions. The Pocket Card provides a visual reference of those conditions and how they compare to previous fire seasons. Pocket Cards are developed and implemented according to NWCG guidelines posted at http://famweb.nwcg.gov/pocketcards/. Fire Danger Pocket Cards are recommended at each local unit where weather data exists.

1. BLM – Fire Danger Pocket Cards are developed for and implemented at each local unit.

2. USFS – Forest Supervisors will develop and distribute Fire Danger Pocket Cards to each fireline supervisor.

D. Preparedness Plan

1. Preparedness plans provide management direction given identified levels of burning conditions, fire activity, and resource commitment, and are required at national, state/regional, and local levels. Preparedness Levels (1-5) are determined by incremental measures of burning conditions, fire activity, and resource commitment. Fire danger rating is a critical measure of burning conditions. Refer to the *National Interagency Mobilization Guide* for more information on preparedness plans.

2. Preparedness Level/Step-up Plans

a. Preparedness Level/Step-up Plans are designed to direct incremental preparedness actions in response to increasing fire danger. Those actions are delineated by "staffing levels." Each step-up plan should address the five preparedness levels (1, 2, 3, 4, and 5) and the corresponding planned actions that are intended to mitigate those fire danger conditions. Several assessment tools are available to measure fire danger.

b. Outputs from the fire danger rating operating plan process, such as staffing levels, are used to support the decisions found in staffing plans, step-up staffing plans, preparedness levels, dispatch response plans, dispatch response levels, etc. Increasing fire danger results in increasing staffing levels, suggesting a corresponding increase in preparedness actions intended to mitigate those fire danger conditions.

c. The staffing plan describes escalating responses that are pre-approved in the fire management plan. Mitigating actions are designed to enhance the unit's fire management capability during short periods (one burning period, Fourth of July or other pre-identified events) where normal staffing cannot meet initial attack, prevention, or detection needs. The difference between preparedness level/step-up and severity is that preparedness level/step-up actions are established in the unit fire management plan, and implemented by the unit when those pre-identified conditions are experienced. Severity is a longer duration condition that cannot be adequately dealt with under normal staffing, such as a killing frost converting live fuel to dead fuel or drought conditions. Severity is discussed later in this chapter.

d. Mitigating actions identified in the fire management plan should include, but are not limited to, the following items:

1) Management direction and considerations
2) Fire prevention actions, including closures/restrictions, media messages, signing, and patrolling
3) Prepositioning suppression resources

4) Cooperation discussion and/or involvement
5) Safety considerations: safety message, safety officer
6) Augmentation of suppression forces
7) Support function: consideration given to expanded dispatch activation, initial attack dispatch staffing, and other support needs (procurement, supply, ground support, and communication)
8) Support staff availability outside of fire organization
9) Communication of Fire Weather Watch and Red Flag Warning conditions
10) Fire danger/behavior assessment
11) Briefings for management and fire suppression personnel
12) Fire information – internal and external
13) Multi-agency coordination groups/area command activation
14) Prescribed fire direction and considerations
15) Increased detection activities

E. Seasonal Risk Analysis

1. A Seasonal Risk Analysis requires fire managers to 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.

2. Information from a Seasonal Risk Analysis can be used to modify the AOP, step-up and pre-attack plans. It provides the basis for actions such as prepositioning critical resources, requesting additional funding, or modifying memoranda of understanding (MOU) to meet anticipated needs.

3. Each unit 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:
a. NFDRS (or CFFDRS) index values (ERC, BI)
b. Temperature levels
c. Precipitation levels
d. Humidity levels
e. Palmer Drought or Standardized Precipitation Index
f. 1000-hour fuel moisture (timber fuels)
g. Vegetation moisture levels
h. Live fuel moisture (brush fuels)
i. Curing rate (grass fuels)
j. Episodic wind events (moisture drying days)

k. Unusual weather events (early severe frost)
l. Fires to date

4. 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.

5. If the Seasonal Risk Analysis suggests that an abnormal fire season might be anticipated, a unit should notify the state/regional office and request additional resources commensurate with the escalated risk.

6. Local risk analyses should be compiled at the state/regional office to determine the predicted fire season severity within the state/region, and then forwarded to the respective national office for use in determining national fire preparedness needs.

7. Risk Analysis is ongoing. 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.

F. Severity Fund Guidance

1. Objective

a. The objective of fire severity is to mitigate losses when abnormally severe fire conditions occur over an extended period. 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 local organization response capability.
b. 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 Normal Year Readiness & Program Management Capability (NYRPMC), formerly most efficient level (MEL), and thus are not an “augmentation” in funding.
c. The authorization to use suppression operations funds for severity preparedness is controlled in individual project approval tied to dollar ceilings, timeframes, 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/regional and national.

2. State/Regional Level Severity Funds

a. Each fiscal year, State/Regional Directors have the authority to spend up to $100,000 for state/regional "short-term" severity needs. Short-term needs refer to special preparedness activities that address situations anticipated to last less than a week. State/Regional Directors are responsible and accountable for ensuring that these funds are used only to meet the objectives of severity, and that amounts are not exceeded.

b. ***USFS –*** *Forest Service severity funding direction is found in FSM 5190.*

c. Each state/regional 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 unit 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 an agency administrator's or formally delegated official's signature. The request and the state/region's decision should be maintained in a severity file.

d. Every fiscal year the national office will provide each state/region with a project number to implement state/regional level severity funding activities. The national office will also notify the State/Regional Director, State/Regional Budget Officer, and the State/Regional FMO when the number is provided, and will request the applicable national finance center to enter the projects in the accounting system.

3. National Level Severity Funding

a. The National Fire Director has the authority to allocate funds greater than $100,000 from the suppression operations subactivity for specified preparedness activities and specified timeframes that will increase preparedness capabilities. The need for these funds must be based upon fuels and weather conditions that are creating, or have the potential to create, abnormally heavy fire preparedness workloads. The following is the process to implement the use of these funds:

1) **Request –** A formal documented request should be concise, but include at a minimum, the following information:

(a) **Quantification of need –** 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.

(b) **Fire danger models –** Using fire danger analysis software (FireFamily Plus) that graphically displays the current seasonal trend for ERC and/or BI vs. all-time worst and historical average, based on an analysis of year-round data.

(c) **Precipitation/drought –** Palmer or standardized precipitation indices that specify the departure from normal.

(d) **Fuel loading –** Quantitative information comparing current to the average.

(e) **Fuel moisture –** Live and dead fuels for current vs. average, and the all-time 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 vegetative index (NDVI) and Great Basin Live Fuel Moisture Project may be a week old or older.

(f) **NWS 30-day weather outlook**.

(1) Amounts, types, and costs – in a table format identify the requested preparedness resources (see sample below).

(2) 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.

(3) Approval signature – The request should contain the signature and date of the relevant agency administrator.

(4) Severity file – Set up a severity file where all documents are maintained for reference, monitoring, and evaluation.

(5) Modifications and extensions – Extensions and modifications to the request(s) are made through the same process.

Sample Unit Severity Funding Request

Item	Quantity	Unit Cost	Total Cost
Fire Prevention Team	1	Average cost/day	$$$$
Type 4 engine	1	Use rate per day (not FOR)	$$$$
Engine crew labor	5	Average cost/day	$$$$
Engine crew Travel and per diem	5	Government rate	$$$$
SEAT	1	Daily minimum & hourly rate	$$$$
Type 3 IC labor	1	Average cost/day	$$$$
Type 3 IC travel and per diem	1	Government rate	$$$$

Responsibilities/Approval Process

Responsibility/Actions	Responsible Official
Identify and develop request	Unit FMO
Approve and transmit to state/regional office	Unit Agency Administrator
Review technical analysis, verify, modify, and consolidate request within 48 hours	State/Regional FMO
Identify and add to the request state/regional needs not efficiently met by unit offices.	State/Regional FMO
Approve and transmit to National Fire Director, (informally notify fire budget staff).	State/Regional Director
Review technical analysis, verify, and modify within 48 hours	National Fire Office
Establish projects in FFIS within 24 hours	Applicable National Finance Center
Notify unit office(s) and state/regional budget lead on receipt of National Office approval	State/Regional FMO
Execute severity project, monitor program and expenditures on a real-time basis	Unit Office
Severity files: Include requests, approvals, and summary of expenditures and activities	Unit/State/Regional/National Offices

4. Appropriate Severity Charges

a. **Labor**

1) All overtime is funded by severity unless assigned to a wildland fire. Overtime is not guaranteed, it must be based on need.
2) Severity assignments/details frequently last up to 30 days and should not be constrained by 14-day fire assignment limitations.
3) In general, personnel obtained under severity authorizations should not be used to fill wildland fire resource orders outside the local dispatch area.
4) Resources obtained under fire severity funding must be available for "immediate" initial attack regardless of the daily task assignment.
5) 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.

5. Labor Cost Coding

a. ***BLM -*** *Labor Cost Coding*

b. ***BLM -*** *Fire personnel outside their normal activation period, BLM employees whose 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.*

c. ***BLM- for example:*** *an Idaho Falls Range Specialist detailed to Arizona on a severity request, codes their base eight and hours outside their normal duty day associated with the severity request to ID 030 2821-HT-severity project number.*

d. ***BLM-*** *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-HT) and the requesting office's severity project number.*

e. ***BLM- for example:*** *An Idaho Falls fire management employee detailed to Arizona on a severity request, codes their base-eight to ID 030 2810-HT; when assigned duty outside of their normal workday associated with the severity request, time is charged to ID 030 2821-HT-severity project number.*

f. ***BLM-*** *Regular hours worked in suppression operations will require the use of the appropriate fire project code (2810-HU or 2821-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.

g. ***BLM- for example:*** *an Idaho Falls fire management employee detailed to Arizona on a severity request, when assigned to fire suppression operations during their base eight, charge their time to ID 030 2810-HU-fire project number; overtime on fire suppression is charged to ID 030 2821-HU-fire project number.*

h. ***BLM-*** An *Idaho Falls Range Specialist detailed to Arizona on a severity request, charges all duty hours (both regular and overtime) associated with fire suppression operations to ID 030 2821-HU-fire project number.*

i. ***BLM- 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.*

j. ***FWS –*** *Labor Cost Coding. Refer to Fire Management Handbook, Chapter 1.6.*

k. ***NPS –*** *Labor Cost Coding. NPS severity funding direction in RM 18, Chapters 18 & 19.*

l. ***USFS –*** *Labor Cost Coding. Forest Service severity funding direction in FSM 5190 provides agency specific direction.*

6. 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, agency-owned use rate (but not fixed ownership rate [FOR]), and commercial rentals and contracts.

7. 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.).

8. Travel and Per Diem /Detailed personnel and prepositioning

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), airfare (including returning to their home base), privately owned vehicle mileage (with

prior approval), and any other miscellaneous expenses associated with the detail.

9. Inappropriate Charges

a. **Severity funding is not approved for the following items:**

1) Administrative surcharges, indirect costs, fringe benefits.
2) Equipment purchases.
3) The purchase of vehicles or maintenance, FOR, repairs, and upgrades.
4) Radios (unless approved by the National Office).
5) Telephones (including cellular).
6) Pumps, saws, and similar suppression equipment.
7) Aircraft availability during contract period.
8) Cache supplies which are normally available in fire caches.

G. Fire Prevention/Mitigation

1. Wildland Fire Cause Determination & Fire Trespass

a. Agency policy requires any wildfire to be investigated to determine cause, origin, and responsibility. For all human-caused fires where the guilty party has been determined, actions must be taken to recover the cost of suppression activities, land rehabilitation, and damages to the resources and improvements.

2. Wildland Fire Mitigation/Prevention

a. To "proactively" mitigate damages and losses from unwanted wildland fires, reduce undesirable human caused ignitions, reduce suppression costs and mitigate the risks of wildland fire to natural and cultural resources, private property and the lives of firefighters and the public, units are required to fund and implement a unit Fire Prevention Plan by completing a wildland mitigation/prevention assessment (see RAMS below).

b. ***NPS –*** *Only units that experience more than an average 26 human caused fires per ten-year period are required to develop a fire prevention plan, based upon a prevention analysis such as RAMS; however, use of this software is not required.*

c. ***USFS –*** *Forest Service direction for wildland prevention and investigation is found in FSM 5110 and 5300.*

d. Wildland fire mitigation/prevention programs based on risks, hazards and values as determined through the Risk Assessment and Mitigation Strategies (RAMS) process are extremely effective in reducing damages and losses during periods of "average" weather, fuels, and human activity conditions. As "fire season" weather and fuel conditions move from normal to above average or severe, and/or human activity increases

substantially, mitigation/prevention programs must be "stepped up" to maintain their ignition and loss prevention effectiveness.

e. Therefore, as the components of wildland severity, human activities, Fire Danger Operating Plan thresholds, and other signals indicate, additional mitigation/prevention actions must be initiated and/or additional resources (Fire Prevention/
f. Education Teams, etc.) should be obtained through fire severity requests or other means. With these additional efforts and resources in place before conditions and fire activity become problematic, suppression resources become more efficient (with reduced human-caused ignitions, suppression resources are available for response to unpreventable ignitions) and exposure to all firefighters and the public is reduced.
g. The mitigation of risk and losses during periods of wildland severity can be addressed by:
    1) Conducting local/regional interagency fire prevention needs assessments which determine the appropriate level of mitigation/prevention actions and resources, then obtaining these resources through details, field/state office severity requests, regional/national resource orders, etc.
    2) Mobilizing local or regional "fire prevention/education" team(s) to quickly assess, plan and implement immediate mitigation and outreach strategies during periods of abnormal wildland fire risk and/or human activity. Refer to the *National Interagency Mobilization Guide (Chapter 20)* or regional mobilization guides for prevention/education team information and mobilization procedures.

H. Mobilization Guide

1. 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.

2. 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 guides 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.