1    **Chapter 10**
2    **Preparedness**
3
4    **Preparedness**
5    Preparedness is the result of activities that are planned and implemented prior to
6    wildland fire ignitions.  Preparedness is a continuous process that includes
7    developing and maintaining unit, state/regional, and national level firefighting
8    infrastructure, predicting fire activity, hiring, training, equipping, and deploying
9    firefighters, evaluating performance, correcting deficiencies, and improving
10   overall operations.  The preparedness process includes routine pre-season
11   actions as well as incremental in-season actions conducted in response to
12   increasing fire danger.
13
14   Preparedness actions are based on operational plans such as Fire Danger
15   Operating Plans (FDOPs).  FDOP use information from decision support tools
16   such as the National Fire Danger Rating System (NFDRS), the Canadian Forest
17   Fire Danger Rating System (CFFDRS, used in interior Alaska), the Palmer
18   Drought Index, live fuel moisture data, Monthly or Seasonal Wildland Fire
19   Outlooks, Seasonal Climate Forecasts, and Wildland Fire Risk Analyses.
20
21   **Fire Danger Operating Plan**
22   A Fire Danger Operating Plan is a fire danger applications guide for agency
23   users at the local level.  A Fire Danger Operating Plan documents the
24   establishment and management of the local unit fire weather station network and
25   describes how fire danger ratings are applied to local unit fire management
26   decisions.  FDOP should be prepared by individuals trained at the Intermediate
27   NFDRS (S-491) level, and preferably the Advanced NFDRS level.  FDOP are
28   generally prepared for local interagency areas, such as a zone-wide operating
29   plan.  Interagency FDOP are an integral component of unit fire management
30   plan(s).  Fire danger rating operating plans may be packaged as either stand-
31   alone documents or as part of a larger planning effort; such as a fire
32   management plan.  Fire danger rating operating plans include, but are not
33   limited to, the following components:
34   • **Roles and Responsibilities**
35       Defined for those responsible for maintenance and daily implementation of
36       the plan, program management related to the plan, and associated training.
37       Training for development of fire danger rating areas is available through
38       NWCG-sponsored NFDRS courses.
39   • **Operational Procedures**
40       This section establishes the procedures used to gather and process data in
41       order to integrate fire danger rating information into decision processes.
42       The network of fire weather stations whose observations are used to
43       determine fire danger ratings is identified.  Station maintenance schedules
44       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, red 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 meteorologists and Geographic Area Coordination Center (GACC) predictive services meteorologists 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://fam.nwcg.gov/fam-web/) at appropriate times. Decision points (such as percentiles discussed below) are determined in FireFamily Plus and reviewed and adjusted annually or more often as appropriate in WIMS and/or other fire danger platforms.

- **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. Fire danger rating inventory incorporates 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 fire danger rating needs.

- **Climatic Breakpoints and Fire Business Thresholds**
  Climatological breakpoints and fire business thresholds are established to provide NFDRS-based decision points for all appropriate management responses in a fire danger rating area. Climatological breakpoints are points on the cumulative distribution of one fire weather/danger index computed from climatology without regard for 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 predetermined by agency directive are shown below.

1    ➢ BLM - 80th and 95th percentiles
2    ➢ FWS - 90th and 97th percentiles
3    ➢ NPS - 90th and 97th percentiles
4    ➢ FS - 90th and 97th percentiles
5 It is equally important to identify the period or range of data analysis used to
6 determine the agency percentiles. The percentile values for 12 months of data
7 will be different from the percentile values for the fire season. Year round data
8 should be used for percentiles for severity type decisions, and percentiles based
9 on fire season data for staffing levels and adjective fire danger.
10
11 Fire business thresholds are values of one or more fire weather/fire danger
12 indexes that have been statistically related to occurrence of fires (fire business).
13 Generally the threshold is a value or range of values where historical fire
14 activity has significantly increased or decreased. Assuming historical climate
15 and occurrence patterns can be applied today, fire business thresholds are
16 expected to more closely predict significant fire occurrence than climatological
17 breakpoints.
18
19 Climatological breakpoints or fire business thresholds are used to compute
20 staffing levels and adjective fire danger ratings.
21
22 **Staffing Level**
23 The Staffing Level is used to make daily internal fire operations decisions. A
24 unit can operate with anywhere from 3 to 9 levels of staffing. Most units
25 typically use 5 (1,2,3,4,5) or 6 (1,2,3L,3H,4,5) levels. Staffing Level is a direct
26 output of the danger rating processor and is based on one of the following:
27 •   NFDRS (Burning Index, Energy Release Component, Spread Component,
28     or Ignition Component)
29 •   Keetch-Byram Drought Index
30
31 **Additional Considerations:**
32 •   Palmer Drought Index or other drought index
33 •   Live Fuel Moisture (calculated or sampled)
34 •   Canadian Forest Fire Danger Rating System
35 •   Soil Moisture
36
37 **Adjective Fire Danger Rating**
38 Adjective Fire Danger Rating (low, moderate, high, very high, extreme) is based
39 on the NFDRS index or component used to compute staffing level and the
40 ignition component. It is a general description of fire danger for the purpose of
41 informing the public. Adjective ratings are computed automatically in the
42 WIMS based on NFDRS parameters provided by local fire managers.
43
44 Climatic breakpoints and fire business thresholds are developed with NFDRS
45 software, such as FIREFAMILY PLUS, and are applied to appropriate NFDRS

1 processors, such as WIMS, to determine daily staffing levels and adjective
2 ratings.  Training for the FIREFAMILY PLUS program is available at local,
3 regional, and national NFDRS courses.
4
5 **Fire Danger Pocket Card for Firefighter Safety**
6 The Fire Danger Pocket Card is used to communicate information on fire danger
7 to firefighters.  The prime objective of the fire danger rating is to provide a
8 measure of the seriousness of local burning conditions. The Pocket Card
9 provides a visual reference of those conditions and how they compare to
10 previous fire seasons. Pocket Cards are developed and implemented according
11 to NWCG guidelines posted at http://fam.nwcg.gov/fam-
12 web/pocketcards/default.htm.  Fire Danger Pocket Cards are recommended at
13 each local unit where weather data exists.
14 • **BLM/FS -** *Fire Danger Pocket Cards are developed for and implemented at*
15    *each local unit.*
16
17 **Preparedness Plan**
18 Preparedness plans provide management direction given identified levels of
19 burning conditions, fire activity, and resource commitment, and are required at
20 national, state/regional, and local levels. Preparedness Levels (1-5) are
21 determined by incremental measures of burning conditions, fire activity, and
22 resource commitment.  The fire danger rating is a critical measure of burning
23 conditions.  Refer to the National Interagency Mobilization Guide for more
24 information on preparedness plans.
25
26 **Preparedness Level/Step-up Plans**
27 Preparedness Level/Step-up Plans are designed to direct incremental
28 preparedness actions in response to increasing fire danger.  Those actions are
29 delineated by "staffing levels."  Each Step-Up Plan should address the five
30 preparedness levels (1, 2, 3, 4, and 5) and the corresponding planned actions that
31 are intended to mitigate those fire danger conditions.  Several assessment tools
32 are available to measure fire danger.
33
34 Outputs from the fire danger rating operating plan process, such as staffing
35 levels, are used to support the decisions found in staffing plans, step-up staffing
36 plans, preparedness levels, dispatch response plans, dispatch response levels,
37 etc.  Increasing fire danger results in increasing staffing levels, suggesting a
38 corresponding increase in preparedness actions intended to mitigate those fire
39 danger conditions.
40
41 The Staffing Plan describes escalating responses that are pre-approved in the fire
42 management plan.  Mitigating actions are designed to enhance the unit's fire
43 management capability during short periods (one burning period, Fourth of July
44 or other pre-identified events) where normal staffing cannot meet initial attack,
45 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.

Mitigating actions identified in the fire management plan 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
- Cooperator 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
- Increased detection activities

**Seasonal Risk Analysis**
A Seasonal Risk Analysis (SRA) 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.

Information from a SRA can be used to modify the Annual Operating Plan
(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.

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:

- 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 SRA suggests an abnormal fire season might be anticipated, a unit should notify the state/regional office and request additional resources commensurate with the escalated risk.  SRA for each geographic area are prepared, issued, and updated each year by GACC Predictive Service staffs.  These analyses consider detailed information for each of the Predictive Services Areas (PSA) within the geographic area.

Seasonal Assessment Workshops are conducted to facilitate these seasonal outlook reports.  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.  Risk analysis is ongoing.  It should be reviewed periodically and revised when significant changes in key indicators occur.  All reviews of seasonal risk analysis, even if no changes are made, should be documented.

**Fire Severity Funding**
Fire severity funding is the authorized use of suppression operations funds (normally used exclusively for suppression operations and distinct from preparedness funds) for extraordinary preparedness activities that are required due to:
- Preparedness plans (fire management plan, fire danger operating plan, annual operating plan, etc.) indicate the need for additional preparedness/suppression resources.
- Current fire workload has exceeded capabilities of local resources.
- Fire seasons that either start earlier or last longer than planned in the fire management plan.

- An abnormal increase in fire potential or danger that is not planned for in existing preparedness plans.
- Fire season occurs outside what is planned in the fire management plan when required suppression resources are not otherwise funded (e.g. seasonal/temporary fire personnel.)

The objective of fire severity funding is to mitigate losses by improving suppression response capability.

When suppression resources that were acquired through the approved fire planning process (e.g. NFMAS, IIAA, FPA) are insufficient to meet the extraordinary need, suppression resources may be requested through the severity funding process.  Fire severity funding is not intended to raise preparedness funding levels to cover differences that may exist between funds actually appropriated and those identified in the fire planning process.

**Typical Uses**
Severity funds are typically used to:
- Increase prevention activities
- Temporarily increase firefighting staffing
- Pay for standby
- Preposition initial attack suppression forces
- Provide additional aerial reconnaissance
- Provide for standby aircraft availability

**Authorization**
Authorization to use severity funding is provided in writing based on a written request with supporting documentation.  Authorization is on a line item basis and comes with a severity cost code.  Agencies will follow their administrative procedures for issuing severity cost codes.  Authorization is provided for a maximum of 30 days per request; however, regardless of the length of the authorization, use of severity funding must be terminated when abnormal conditions no longer exist.  If the fire severity situation extends beyond the 30 day authorization, the State/Region must prepare a new severity request.

**State/Regional Level Severity Funding**
Each fiscal year the national office will provide each state/region with funding and a severity cost code for state/regional short-term severity needs (e.g., wind events, cold dry front passage, lightning events, and unexpected events such as off road rallies that are expected to last less than one week).  Expenditure of these funds is authorized by the state/regional directors at the written request of the agency administrator.  State/regional directors are responsible and accountable for ensuring that these funds are used only to meet severity funding objectives and that amounts are not exceeded.  The national office will notify the

state/regional director, state/regional budget officer, and the state/regional FMO when the severity cost code is provided.

- **FWS -** *Short-term severity or "step-up" cost codes are established yearly (at the Regional level) as PER1, PER2, etc (numeric value indicates the specific region utilizing short-term severity funding).*
- **NPS -** *Parks have the authority to approve "Step-up" actions only, as defined in their fire management plan. Regional offices approve severity (long term - up to 30 days) for parks up to $100,000 per severity event.*
- **FS -** *Severity funding direction is found in FSM 5190.*

**National Level Severity Funding**

National Agency Fire Directors or their delegates are authorized to allocate fire severity funding under specific conditions stated or referenced in this chapter. Expenditure of these funds is authorized by the appropriate approving official at the written request of the state/regional director. Approved severity funding will be used only for the preparedness activities and timeframes specifically outlined in the authorization, and only for the objectives stated above.

- **NPS -** *National office approves all requests over $100,000.*

**Appropriate Severity Funding Charges**

**Labor**

Appropriate labor charges include:

- Regular pay for non-fire personnel
- Regular pay for seasonal/temporary fire personnel outside their normal fire funded activation period
- Overtime pay for all fire and non-fire personnel
- Severity funded personnel and resources must be available for immediate initial attack regardless of the daily task assignment
- Severity funded personnel and resources will not use a severity cost code while assigned to wildfires. The wildfire firecode number will be used.

**Vehicles and Equipment**

- GSA lease rate and mileage
- Hourly rate or mileage for Agency owned vehicles
- Commercial rentals and contracts
- **FWS -** *Repair and maintenance of Fish and Wildlife vehicles and equipment; FWS does not have a Use Rate covering these charges.*

**Aviation**

This includes:

- Contract extensions
- The daily minimum for call when needed (CWN) aircraft
- Preposition flight time

- Support expenses necessary for severity funded aircraft (facility rentals, utilities, telephones, etc.)

**Travel and Per Diem**

Severity funded personnel in travel status are fully subsisted by the government in accordance with their agency regulations.  Costs covered include:

- Lodging
- Government provided meals (in lieu of per diem)
- Airfare (including returning to their home base)
- Privately owned vehicle mileage (with prior approval)
- Other miscellaneous travel and per diem expenses associated with the assignment

**Prevention Activities**

These include:

- Funding Prevention Teams (Preventions teams will be mobilized as referred in the *National Mobilization Guide*, Chapter 20)
- Implementing local prevention campaigns, to include community risk assessment, mitigation planning, outreach, and education
- Augmenting patrols
- Note: Non-fire funded prevention team members should charge base 8 and overtime to the severity cost code for the length of the prevention activities assignment.  Fire funded personnel should charge overtime only to the severity cost code for the length of the prevention activities assignment.

**Inappropriate Fire Severity Funding Charges**

- To cover differences that may exist between funds actually appropriated (including rescissions) and those identified in the fire planning process
- Administrative surcharges, indirect costs, fringe benefits
- Equipment purchases
- Purchase, maintenance, repair, or upgrade of vehicles
- Purchase of radios
- Purchase of telephones
- Purchase of pumps, saws, and similar suppression equipment
- Aircraft availability during contract period
- Cache supplies which are normally available in fire caches
- Fixed ownership rate vehicle costs
- EERAs will not be used for non-emergency activities, including severity activities, rehabilitation projects, and hazardous fuels projects.

**Interagency Requests**

Agencies working cooperatively in the same geographic area must work together to generate and submit joint requests, to minimize duplication of required resources, reduce interagency costs and to utilize severity funded

1  resources in an interagency manner.  However, each agency should request
2  funds only for its own agency specific needs.  The joint request should be routed
3  simultaneously through each agency's approval system, and the respective
4  approving official will issue an authorization that specifies allocations by
5  agency.
6
7  **Requesting Fire Severity Funding**
8  Fire severity funding requests should be submitted on the Interagency Severity
9  Funding Request Form found at the website listed below.  The completed and
10  signed request is submitted from the state/regional director to the appropriate
11  approving official as per the sequence of action outlined below.  Authorizations
12  will be returned in writing.
13
14  The interagency standard format for fire severity funding requests may be found
15  at:  http://www.nifc.gov/policies/red_book/2009/ISFRF.doc.
16  • **BLM -** *severity request form is at:*
17  *http://www.blm.gov/nifc/st/en/prog/fire/fireops/severity.html*
18
19  **Sequence of Action and Responsible Parties for Severity Funding Requests**

| Action | Responsible Party |
|---|---|
| Identify and develop severity funding request. | Unit FMO |
| Review, modify, and approve (or reject) request.  Forward to state/regional office. | Unit agency administrator |
| Review, modify, and approve (or reject) unit request.  Add state/regional needs and consolidate.  Forward to state/regional director for approval within 48 hours. | State/Regional FMO |
| Review, modify, and approve (or reject) request. Forward to the appropriate National Fire Director/approving official within 48 hours.  Notify the fire budget staff. | State/Regional Director |
| Review, modify, and approve (or reject) the request within 48 hours.  Issue written authorization with a severity cost code. | Appropriate National Fire Director/Approving Official |
| Establish severity cost code in the appropriate finance system within 24 hours. | Applicable National Finance System |
| Notify unit office(s) and state/regional budget lead upon receipt of authorization. | State/Regional FMO |
| Execute severity cost code. Ensure that project expenditures are only used for authorized purposes. | Unit Office |
| Maintain severity files, including requests, authorizations, and summary of expenditures and activities. | Unit/State/Regional/ National Offices |

**Labor Cost Coding For Severity Funded Personnel**

Fire personnel outside their normal activation period, employees whose regular salary is not fire funded, 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 and the requesting office's severity cost code.

Fire funded personnel should charge their regular planned salary (base-eight) to their budgeted subactivity using their home unit's location code. Overtime associated with the severity request should be charged to the severity suppression operations subactivity and the requesting office's severity cost code.

Regular hours worked in suppression operations will require the use of the appropriate fire subactivity with the appropriate firecode number. Overtime in fire suppression operations will be charged to the suppression operations subactivity with the appropriate firecode 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.

- *FS - Labor Cost Coding. Forest Service severity funding direction in FSM 5190 provides agency specific direction.*

**Documentation**

The state/regional and national office will document and file accurate records of severity funding activity. This will include complete severity funding requests, written authorizations, and expenditure records.

**Severity Funding Reviews**

State/regional and national offices should ensure appropriate usage of severity funding and expenditures. This may be done as part of their normal agency fire program review cycle. The severity funding audit checklist may be used as a guide for this process. Interagency Preparedness Review checklists can be found at:
http://www.nifc.gov/policies/preparedness_reviews/preparedness_reviews.htm

- *BLM - Severity funding is not a reviewed item of the BLM national Preparedness Review. BLM Preparedness Review Checklists can be found at:*
  *http://www.blm.gov/nifc/st/en/prog/fire/fireops/preparedness/preparedness_review/checklists.html*

**Fire Prevention/Mitigation**

**Wildland Fire Cause Determination & Fire Trespass**
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.

**Wildland Fire Mitigation and Prevention**
Fire programs are required to fund and implement unit level Fire Prevention Plans by completing a wildland mitigation/prevention assessment.  The purpose of this is to reduce undesirable human caused ignitions, to reduce damages and losses caused by unwanted wildland fires, and to reduce the suppression costs of wildland fires.  Wildland fire mitigation/prevention programs based on the Risk Assessment and Mitigation Strategies (RAMS) process can reduce damages and losses during periods of average weather, fuels, and human activity.  As weather and fuel conditions move from average to above average or severe, and/or human activity increases, mitigation and prevention activities must be strengthened to maintain effectiveness.

Prevention includes education (sign posting plans, school programs, radio and news releases, recreation contacts, local business contacts, exhibits), industrial program monitoring (timber, mining, power line maintenance operations), reconnaissance patrols, and other activities to prevent and mitigate wildfire damage, and loss.

- *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.*
- *FS - Forest Service direction for wildland prevention and investigation is found in FSM 5110 and 5300.*