

**Appendix C**

# **WILDLAND FIRE SITUATION ANALYSIS**

**Wildland Fire Situation Analysis (WFSA) is a decision-making process in which the Agency Administrator or representative describes the situation, establishes objectives and constraints for the management of the fire, compares multiple strategic wildland fire management alternatives, evaluates the expected effects of the alternatives, selects the preferred alternative, and documents the decision. The format and level of detail required is dependent on the specific incident and its complexity. The key is to document the decision.**

## **WFSA INITIATION**

**FIRE NAME**

--

**JURISDICTION(S)**

--

**DATE AND TIME INITIATED**

--

<b>VI. DECISION</b>
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**The selected alternative is:**

**RATIONALE:**

**AGENCY ADMINISTRATOR SIGNATURE**

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**DATE/TIME**

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<b>I. WILDLAND FIRE SITUATION ANALYSIS</b>
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<b>A. JURISDICTION(S):</b>	<b>B. GEOGRAPHIC AREA:</b>
<b>C. UNIT(S):</b>	<b>D. WFSA #:</b>
<b>E. FIRE NAME:</b>	<b>F. INCIDENT #:</b>
<b>G. ACCOUNTING CODE:</b>	
<b>H. DATE/TIME PREPARED:</b>	
<b>I. ATTACHMENTS:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> <b>COMPLEXITY MATRIX/ANALYSIS<sup>1</sup></b></li> <li><input type="checkbox"/> <b>RISK ASSESSMENT<sup>1</sup></b></li> <li><input type="checkbox"/> <b>PROBABILITY OF SUCCESS<sup>1</sup></b></li> <li><input type="checkbox"/> <b>CONSEQUENCES OF FAILURE<sup>1</sup></b></li> <li><input type="checkbox"/> <b>MAPS<sup>1</sup></b></li> <li><input type="checkbox"/> <b>DECISION TREE<sup>2</sup></b></li> <li><input type="checkbox"/> <b>FIRE BEHAVIOR PROJECTIONS<sup>1</sup></b></li> <li><input type="checkbox"/> <b>CALCULATIONS OF RESOURCE REQUIREMENTS<sup>1</sup></b></li> <li><input type="checkbox"/> <b>OTHER (SPECIFY)</b></li> </ul> <p><sup>1</sup> Required  <sup>2</sup> Required by the USFS</p>	

## **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 the highest priority, Suppression objectives must relate to resource management objectives in the unit resource management plan.**

**Economic objectives could include closure of all 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 local 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 wildland fire 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 (must be specific and measurable):**

**1. SAFETY:**  
**Public**

**Firefighter**

**2. ECONOMIC:**

**3. ENVIRONMENTAL:**

**4. SOCIAL:**

**5. OTHER:**

### **B. CONSTRAINTS:**

## **Section III. Alternatives**

**The FIRE MANAGER/and or INCIDENT COMMANDER complete(s) this page.**

- 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 reality of the availability of these needed resources.**
- III.D. Estimated Final Fire 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 % 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: Assign the complexity rating calculated in the Guide for Assessing Fire Complexity.**
- III.I. Maps: A map for each alternative must be prepared. The map shall be based on the “Probability of success/Consequences of Failure” and include other relative information.**

### III. ALTERNATIVES

	A	B	C
<b>A. WILDLAND FIRE STRATEGY:</b>			
<b>B. NARRATIVE:</b>			
<b>C. RESOURCES NEEDED:</b> <b>HANDCREWS</b> <b>ENGINES</b> <b>DOZERS</b> <b>AIRTANKERS</b> <b>HELICOPTERS</b>			
<b>D. ESTIMATED FINAL FIRE SIZE:</b>			
<b>E. ESTIMATED CONTAIN/ CONTROL DATE</b>			
<b>F. COSTS:</b>			
<b>G. RISK ASSESSMENT:</b> <b>PROBABILITY OF SUCCESS/</b>  <b>CONSEQUENCES OF FAILURE</b>			
<b>H. COMPLEXITY:</b>			
<b>I. ATTACH MAPS FOR EACH ALTERNATIVE</b>			

## **Section IV. Evaluation of Alternatives**

**The Agency Administrator(s), FMO and/or Incident Commander(s) completes this page.**

**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 natural 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 resource 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

<b>A. EVALUATION PROCESS</b>	<b>A</b>	<b>B</b>	<b>C</b>
<b><i>SAFETY</i></b>  Firefighter Aviation Public			
<b>Sum of Safety Values</b>			
<b><i>ECONOMIC</i></b>  Forage Improvements Recreation Timber Water Wilderness Wildlife Other (specify)			
<b>Sum of Economic Values</b>			
<b><i>ENVIRONMENTAL</i></b>  Air Visual Fuels T & E Species Other (specify)			
<b>Sum of Environmental Values</b>			
<b><i>SOCIAL</i></b>  Employment Public Concern Cultural Other (Specify)			
<b>Sum of Social Values</b>			

## **Section V. Analysis Summary**

**The Agency Administrator(s), FMO and/or Incident Commander(s) complete this page.**

- 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-tiered 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 three, section III.D. Complexity is calculated in the attachments and displayed on page three, section III.H. Costs are displayed on page three, section III.F. Economic Values have been calculated and displayed on page four. Probability of Success/Consequences of Failure are calculated in the attachments and displayed on page three, 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 the 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 Geographic Coordination Center and 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).**

## **Section VI. 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.**

## V. ANALYSIS SUMMARY

<b>ALTERNATIVES</b>	<b>A</b>	<b>B</b>	<b>C</b>
<b>A. COMPLIANCE WITH OBJECTIVES:</b>  <i>SAFETY</i>  <i>ECONOMIC</i>  <i>ENVIRONMENTAL</i>  <i>SOCIAL</i>  <i>OTHER</i>			
<b>B. PERTINENT DATA:</b> <i>FINAL FIRE SIZE</i> <i>COMPLEXITY</i> <i>COST</i> <i>RESOURCE VALUES</i> <i>PROBABILITY of SUCCESS</i> <i>CONSEQUENCES of FAILURE</i>			
<b>C. EXTERNAL/INTERNAL INFLUENCES:</b>  <i>NATIONAL AND GEOGRAPHIC PREPAREDNESS LEVEL</i> _____  <i>INCIDENT PRIORITY</i> _____  <i>RESOURCE AVAILABILITY</i> _____  <i>WEATHER FORECAST (LONG-RANGE)</i> _____  <i>FIRE BEHAVIOR PROJECTIONS</i> _____			

## **Section VII. Daily Review**

**The Agency Administrator(s), or designate complete(s) this page.**

**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 five, section V.C. Assign a “yes” under “WFSA Valid” to continue use of this WFSA. A “no” indicates this WFSA is no longer valid and another WFSA must be prepared or the original revised.**



**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:**


# **A GUIDE FOR ASSESSING FIRE COMPLEXITY**

**The following questions are presented as a guide to assist the Agency Administrator and staff in analyzing the complexity or predicted complexity of a fire situation. Because of the time required to assemble or move an Incident Management Team to a fire, this checklist should be completed when a fire escapes initial attack and be kept as part of the fire records. This document is prepared concurrently with the preparation of and attached to a new or revised Wildland Fire Situation Analysis. It must be emphasized that this analysis should, where possible, be based on predications to allow adequate time for assembling and transporting the ordered resources.**

## **Use of the Guide:**

- 1. Analyze each element and check the response yes or no.**
- 2. If positive responses exceed, or are equal to, negative responses within any primary factor (A through G), the primary factor should be considered as a positive response.**
- 3. If any three of the primary factors (A through G) are positive response, this indicates the fire situation is or is predicted to be Type I.**
- 4. Factor H should be considered after all above steps. If more than two of these items there are fewer than three positive responses in the primary factors (A-G) a Type II 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.**

## **GLOSSARY OF TERMS**

**Potential for blow-up conditions** - Any combination of fuels, weather and topography excessively endangering personnel.

**Threatened and endangered species** - Threat to habitat of such species, or in the case of flora, threat to the species itself.

**Smoke Management** - Any situation which creates a significant public response, such as smoke in a metropolitan area or visual pollution in high-use scenic areas.

**Extended exposure to unusually hazardous line conditions** - Extended burnout or backfire situations, rock slides, cliffs extremely steep terrain, abnormal

fuel situations such as frost killed foliage, etc.

**Disputed Fire Management responsibility** - Any wildland fire where responsibility for management is not agreed upon due to lack of agreements or different interpretations, etc.

**Disputed fire policy** - Differing fire policies between suppression agencies when the fire involves multiple ownership is an example.

**Pre-existing controversies** - These may or may not be fire management related. Any controversy drawing public attention to an area may present unusual problems to the fire overhead and local management.

**Have overhead 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 between individuals. If, however, the Agency Administrator feels the existing overhead cannot continue to function efficiently and take safe and aggressive action due to mental or physical reasons, assistance is mandatory.

# FIRE COMPLEXITY ANALYSIS

<b>A. FIRE BEHAVIOR: Observed or Predicted</b>	<b>Yes/No</b>
1. <b>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.</b>	___ ___
2. <b>Potential exists for “blowup” conditions (fuel moisture, winds, etc).</b>	___ ___
3. <b>Crowning, profuse or long-range spotting.</b>	___ ___
4. <b>Weather forecast indicating no significant relief or worsening conditions.</b>	___ ___
<b>Total .....</b>	___ ___
<b>B. RESOURCES COMMITTED:</b>	
1. <b>200 or more personnel assigned.</b>	___ ___
2. <b>Three or more divisions.</b>	___ ___
3. <b>Wide variety of special support personnel.</b>	___ ___
4. <b>Substantial air operation which is not properly staffed.</b>	___ ___
5. <b>Majority of initial attack resources committed.</b>	___ ___
<b>Total .....</b>	___ ___
<b>C. RESOURCES THREATENED:</b>	
1. <b>Urban interface.</b>	___ ___
2. <b>Developments and facilities.</b>	___ ___
3. <b>Restricted, threatened or endangered species habitat.</b>	___ ___
4. <b>Cultural sites.</b>	___ ___
5. <b>Unique natural resources, special designation zones or wilderness.</b>	___ ___
6. <b>Other special resources.</b>	___ ___
<b>Total .....</b>	___ ___
<b>D. SAFETY:</b>	
1. <b>Unusually hazardous fire line conditions.</b>	___ ___
2. <b>Serious accidents or fatalities.</b>	___ ___
3. <b>Threat to safety of visitors from fire and related operations.</b>	___ ___
4. <b>Restrictions and/or closures in effect or being considered.</b>	___ ___
5. <b>No night operations in place for safety reasons.</b>	___ ___
<b>Total .....</b>	___ ___

<b>E. OWNERSHIP:</b>	<b>Yes/No</b>
1. Fire burning or threatening more than one jurisdiction.	___ ___
2. Potential for claims (damages).	___ ___
3. Different or conflicting management objectives.	___ ___
4. Dispute over fire management responsibility.	___ ___
5. Potential for unified command.	___ ___
<b>Total .....</b>	___ ___

<b>F. EXTERNAL INFLUENCES:</b>	
1. Controversial wildland fire management policy.	___ ___
2. Pre-existing controversies/relationships.	___ ___
3. Sensitive media relationships.	___ ___
4. Smoke management problems.	___ ___
5. Sensitive political interests.	___ ___
6. Other external influences.	___ ___
<b>Total .....</b>	___ ___

<b>G. CHANGE IN STRATEGY</b>	
1. Change in strategy (from lower to higher intensity management).	___ ___
2. Large amounts of unburned fuel within planned perimeter.	___ ___
3. WFSA invalid or requires updating.	___ ___
<b>Total .....</b>	___ ___

<b>H. EXISTING OVERHEAD:</b>	
1. Worked two operational periods without achieving initial objectives.	___ ___
2. Existing management organization ineffective.	___ ___
3. Overhead/IMT overextended mentally and/or physically.	___ ___
4. Incident actions plans, briefings, etc., missing or poorly prepared.	___ ___
<b>Total .....</b>	___ ___

<b>Signature</b>	
<b>Date</b>	<b>Time</b>

# WFSA INSTRUCTIONS

## Section I. WFSA Information Page

*The Agency Administrator completes this page.*

- I.A. Jurisdiction(s): Assign the agency 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: Self-explanatory.**
- 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: Self-explanatory.**
- 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.**

