

## **Lessons Learned From Frye Mesa & Whitmire Rx Burns Escaped Prescribed Fire Review**

### **I. Prescribed Fire Burn Plan (RXBP)**

#### **A. Complexity Analysis**

- Hotter/dryer prescriptions to meet objectives may raise complexity in ordinarily low complexity burns. A narrative explanation in the prescription element of the RXBP may be necessary when these high end prescriptions are utilized. Consider specialized contingency plans and mop-up standards for hotter/dryer prescriptions and/or when near red flag conditions are forecasted shortly after burn implementation.
- Adjacent land of other jurisdictions or private ownership may increase complexity in otherwise low complexity burns. Consider formal agreements allowing for prescribed fire on lands other than FS in the future.
- Small burn units may be more complex than commonly perceived; i.e. small units may be limited in utilizing best available control features; small units increase the density of personnel; small units are often associated with adjoining restrictions in application of fire; small units can often be perceived as being completed in short time frames; small units are often perceived to require less holding and mop-up, etc.
- Consider political and social sensitivity of the area in the complexity analysis process. Seek outside input.
- Contingency plans should always allow for the full range of strategies and tactics in order to best secure the Rx fire, should a slop-over or breach occur. The plan should not prevent firing operations to occur simultaneous to holding operations.
- If future prescribed burn projects include research and/or on site monitoring activities, the complexity analysis should reflect this in Element 2; dependency of activities.
- Element 16 of the complexity analysis (management organization), should be evaluated to include the expected and/or required size of the organization for implementation.
- In describing and identifying “special features” in the On-Site element of the complexity analysis, make concerted efforts to address all similar features or values at risk in the Off-Site element as well, i.e. ranch houses, municipal water sheds, etc. Seek consultation with other subject matter experts (SMEs), and err on the side of caution.

#### **B. Contingency Planning**

- Contingency plans should factor worst case scenarios and not allow perceived financial constraints to drive and limit contingency resource needs.

- Identify specific number of personnel assigned to the resources within the RXBP based on worst case contingency plan. Consider using the DOI Holding Resources Worksheet.
- Strengthen contingency plans within all RXBPs by addressing existing conditions and identifying adequate resources for successful burn implementation.
- If management action points are referenced in a contingency plan, a map with those points should be included in the RXBP.

### **C. Burn Plan Writing**

- Emphasize reviewing and following the Prescribed Fire Implementation Guide while writing every RXBP to ensure they are current and all elements are complete.
- Continue to make adjustments in future burn plan writing based on recent past experiences of prescribed burns on the unit.
- Ensure that the planning phase of a prescribed fire project includes site visits with key practitioners and Line Officers. Ensure the site is visited between plan completion and implementation.

### **D. Plan Elements and Content**

- Current RXBPs and JHAs need to be updated to reflect current ATV standards and allowances within FS policy.
- The RXBPs should document the individual, by position, who will declare an escape as a “wildfire” and once declared, identify which designated individual will be in charge as the IC. Ensure this information is covered during prescribed fire briefings.
- Avoid naming individuals and resources in the RXBP and the plan’s organization chart. This is better suited in an IAP or other documentation used during implementation.
- Documentation of the test fire must occur in the RXBP as well as unit logs. This documentation should include time, location, results, and/or concerns.

### **E. Miscellaneous**

- Ensure adequate time for holding and mop-up especially when working with narrow burn windows and/or high end prescriptions.
- The use of an Incident Action Plan is a good practice for Rx fire and should continue based on complexity, resources assigned, and as other elements of incident planning dictate.

## **II. Qualifications**

- Ensure all personnel are qualified and properly trained to be on the burn and have an integral role in implementation. Others who are in critical observation roles should be held to safe areas away from the burn, burn personnel, or potential threats. Additional personnel increases complexity and responsibility.
- Better understanding and familiarity w/policy for escorted and unescorted visits to a fire/burn is needed. Being qualified to be on a prescribed fire line does not automatically constitute permission. The burn boss as incident commander has the authority and responsibility to grant or deny permission.
- All escorted personnel must remain escorted throughout their entire stay on the prescribed burn or until the burn boss has declared the fire out.
- Do not allow research objectives and schedules to override standard fireline qualification requirements or dictate prescription windows.

## **III. Communications**

### **A. Internal & External to the Unit**

- Attempts must be made to clarify information and messages to prevent misperceptions and miscommunications. Refer to the Five Communications Responsibilities (IRPG p. ix, Leading in the Wildland Fire Service, NWCG 2889 p. 50-51); Brief, Debrief, Acknowledge and Understand Messages, Communicate Hazards to Others, and Ask If You Don't Know.
- Improve our culture and relationships to a point where respectful disagreement in conversation can occur. We must not assume nor fear that all disagreements will be confrontational and develop confidence in the value of respectful disagreements.
- Ensure local Delegation of Authority documentation and protocols relative to Rx fire, wildland fire use, and suppression are in place and being followed.
- Improve communications with partners, cooperators, adjacent land owners, and the Regional Office (RO) relative to fire activities and decisions.
- Improve communications with RO Fire Leadership if there's a potential for resource commitment of non-Forest resources and/or interagency partners to Rx fires.
- Frequent and two-way communication with the Geographic Area Predictive Services and the National Weather Service prior to prescribed burns will benefit all parties in terms of heightened situation awareness; i.e. specific forecast elements, rare events, trends, early detection, etc. Ask questions when uncertainty or unknowns arise.
- Ensure that what may be apparent as a rare event, or "classic" weather pattern to the NWS and Predictive Services is well communicated and understood by the field. Do

not take for granted that the same level of appreciation of consequences is understood by the field.

- Ensure that all the contacts, communication chains, and the information plan in the RXBP are made and followed. Social and political contacts are essential to success as are strategic and planning contacts.

#### **B. Dispatch Function**

- Ensure all dispatchers (detailers and regulars) are trained in local dispatch office protocol for log entries and communications.
- Improvement is needed within the Dispatch community relative to spot weather forecast input and report retrieval process (webpage). Conduct training and periodic reviews among all dispatch staff in spot weather request procedures; input, retrieval, and reporting.

#### **C. Field Communications**

- Ensure appropriate leadership initiative and presence with timely transition of command based on urgency and complexity of the situation. Transfer of command is formally communicated to all personnel, both field and dispatch.
- Ensure that clear leader's intent is delivered and understood, all the time.
- Ensure adequate radio communications and equipment exist in proportion to the number of personnel assigned and the physical separation of the assignments. Give special consideration to those being escorted or who may have a mission requiring independent movement or action.
- The use of a discrete frequency to share fire information was stopped by the burn boss and communications were moved to the assigned frequency. This was a good decision that needs to continue in order to ensure a shared situation awareness.
- Field personnel should repeat spot weather forecasts back to the dispatch office after receiving to ensure all information received is accurate; refer to the Five Communication Responsibilities.
- Ensure that all personnel assigned to the burn understand each other's roles and locations at all times. Stay in communication with adjoining forces.

### **IV. Weather & Predictive Services**

#### **A. National Weather Service (NWS) & Predictive Services**

- Field must improve timely feedback to NWS on forecast accuracy.
- Frequent Red Flag warnings over the spring months may have reduced sensitivity to the warnings in the field. NWS and SWA Predictive Services should consider re-evaluating and re-describing Red Flag criteria.

- Consider the effects of extreme temperatures, wind, and drying trends between early summer moisture events. Predictive Services can assist in analyzing dramatic changes in fuel conditions between such weather events.
- Seek opportunities to improve relations between local units at all levels and local NWS offices to build trust and credibility.
- The applicability and value of Predictive Services' products to Rx fire planning and implementation is not fully realized nor clear. Efforts should be made to explore this concern further and report out to the field.
- Consider utilizing portable RAWs more frequently for all RX burns where representative permanent stations are unavailable. Contact SWA Predictive Services office for available RAWs kits.

#### **B. Situation Awareness**

- Consider extending the forecast period for spot weather requests, beyond the expected implementation phase to include the expected mop-up and holding. Make use of multiple spot requests as well as request multiple-day periods in a single forecast.
- Review and brief on Red Flag criteria; ensure the parameters are known.
- Be aware that trends in uncharacteristic weather may be an indication of persistent climate change occurring and adjust Rx fire planning and implementation accordingly.
- A degree of uncertainty, due to difficulty in predicting extreme wind events, must be expected in Rx fire planning and implementation. Therefore, assume nothing is routine and employ High Reliability Organization (HRO) characteristics by expecting the unexpected and always asking, "what if?"
- Maintain the habit of taking periodic weather observations on-site before and during implementation. Seek improvement in such habits during implementation and carry forward into the holding and mop-up phases of prescribed burns, even as slop-overs and spot fires occur. Identify/dedicate an individual to take this responsibility through the duration of the Rx fire event.
- Use the daily, weekly, monthly, and special request products in weather and fire behavior available from Predictive Services and the NWS to broaden the scope of situation awareness, at all levels.

#### **V. Resource Allocation**

- Clarification is needed regarding suppression resource availability and commitment to Rx burns and how that relates to funding sources. Ensure key Rx burn organization roles are filled from committed resources only.

- Consider utilizing dedicated safety oversight in both planning and implementation of all levels of complexity in Rx fires. Utilize Rx fire as a training opportunity for safety officers.
- The importance of committing resources to prescribed fires is just as critical as the historical importance of resource commitment to suppression. The consequences of failing to commit resources to Rx fire is equal to the consequences of shortages of resources in critical suppression efforts.
- Burn bosses should consider longer commitment of holding and contingency resources when burning under moderate or higher complexities, when prescription and weather parameters are at the high end, or extreme wind events are forecasted.

## **VI. Leadership & Decision Making**

- Prior to a decision to utilize Rx fire as the tool of choice to meet resource objectives, ensure alternatives have been analyzed for cost effectiveness, efficiency, safety, probability of success, and acceptable risk.
- The decision to declare the Rx fire an “escape” was done without apprehension or hesitation. This was well communicated by the individual in charge at the time and provided a smooth and nearly seamless transition in command from the prescribed fire to the declared wildfire.
- Decisions to cancel or postpone Rx fire projects should not be made solely on weather forecasts ahead of time. Doing so may severely impede our ability and responsibility to be stewards of public lands. Field validation and updated spot weather forecasts must occur often prior to and in support of better informed decisions.
- Enhance situation awareness for better informed decisions by incorporating other events, sources of information, and past experience beyond the standard go, no-go decision process; i.e. other on-going or cancelled Rx fire activity in the area, utilize multiple predictive services products, consider recent regional or local political sensitivity to Rx fire, etc.
- Pay attention to instinct and “listen to gut feelings” by speaking up and sharing with others. Validate or discount instinct through communication and err on the side of caution by vocalizing concerns.
- Perceptions of pressure to complete Rx burn projects should be addressed, questioned and shared with responsible line officers so that clarification can be made for decision to proceed or not.
- The Forest has made a notable effort to establish and document line officer qualifications and appropriate delegations.

- Fatigue and work/rest limitations were monitored and factored into a good decision to cease ignitions late into the duty day.
- Local unit AARs were conducted ahead of, and independent of, the delegated review. This is becoming a common practice within the Fire community and should be maintained.

## **VII. Documentation & Preparing for a review**

- Keep good documentation during prescribed fire implementation on such things as weather observations, log books, and contacts. By continuing to do so, we are better prepared for future reviews.
- Ensure maximum benefits from all learning processes occurs by careful thought and planning in all levels of response to escaped prescribed fires. Be sure to use correct terminology and process for all reviews.
- Reviews should occur as soon as possible while events are current in the participants minds, but they should not be rushed. Careful and deliberate scheduling in consultation with the unit is recommended.
- Insist and ensure that we are doing AARs all the time and every time, at all levels of the Forest's fire and fuels organization, to ensure that we carry forward good practices, correct mistakes, and improve weaknesses.
- Ensure that we visit the lessons learned from previous AARs and incorporate them into future and current activities.
- AARs have limitations. Be receptive, open, and encourage outside reviews regardless of events that trigger reviews. The Forest must recognize that external reviews can be productive and have appropriate applications such as this.
- The unit, agency, and Wildland Fire Community should be comfortable with and promote a culture where any review that targets organizational learning as it's primary objective is welcomed.