

AFTER ACTION REVIEW

**Halls Fork Prescribed Burn
October 14-16, 2004**

**Uinta National Forest
Spanish Fork Ranger District
October 18, 2004**

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Introduction

The Halls Fork Prescribed Burn was conducted on October 14th through 16th 2004. Daily After Action Reviews were conducted at the Strawberry Visitor Center (primary briefing site) as resources came off the line. On October 18th, a close-out meeting for this project was conducted by the Burn Boss, principal Overhead and the Spanish Fork District Ranger. At this meeting the District Ranger facilitated an After Action Review for the purpose of consolidating lessons learned from execution of this project and how to apply them on future prescribed burn projects. The outline for After Action Reviews in the interagency Incident Response Pocket Guide (NFES #1077) was utilized for this review. Participants at this meeting included the following individuals.

<u>Name</u>	<u>Position</u>	<u>Project Assignment</u>
Dave Provencio	R4 Fire Operations Specialist	Type 1 Burn Boss
Riva Duncan	Uinta/W-C NF's Fuels Specialist	Type 1 Ignition Specialist
Chuck Wentlender	Uinta/W-C NF's South Zone FMO	Holding Boss/ICT3
Larry Velarde	UNF/Pleasant Grove RD Rec. Mgr.	Logistics Section
Bill Ott	UNF/Spanish Fork Dist. Ranger	Local Agency Admin.

What Was Planned?

The primary objectives included executing this prescribed burn in accordance with the approved burn plan so as to meet resource management objectives described in the Decision Notice for this project. Pre-burn monitoring indicated that favorable fuels and weather conditions (within prescription parameters) were predicted for October 14th through the 16th. Also favoring these dates was the October 13th National Weather Service forecast for a series of Pacific storms (season ending event) moving into the area the following week.

Strategy included securing the north and east perimeter of the burn unit boundary. Once these were secured, aerial ignition operations would commence beginning in the northeast corner and progressing south through the unit. Forty to sixty percent of the aspen and mountain brush types were to be treated with conifer stands (white fir) not to receive any active lighting.

Tactics included burning out (hand ignition) the north and east boundaries to achieve a black line approximately one chain wide. This was to be done with one 20-person crew with two additional 20-person crews and two engines providing holding. Two dozers and a helicopter with bucket were on-site as additional holding resources. Aerial ignition operations called for use of a plastic sphere dispenser (PSD).

The rate of ignition was to be dependent on observed fire behavior from the test fire to be conducted in the northeast corner in a representative fuel type. Operations were to be monitored and adjusted as needed based on observed fire behavior and weather variables and on predicted fire weather from spot weather forecasts.

Other planned activities included extensive public notification (through the media, open houses, and letters to potentially affected interests) and a closure of the burn area and access roads during project execution. A peer review of the burn plan was to occur in accordance with the Interagency Prescribed Fire Management Handbook. A portable RAWS station was to be set up on the unit two weeks prior to project execution. Additionally, a DataRam air quality sensor was placed at the Heber Ranger Station to monitor ambient air quality. A pre-burn orientation of the Burn Boss and principal overhead was to be conducted and a briefing of all assigned resources was to occur before each operational period.

What Actually Happened?

Effective Performance:

Pre-Burn Performance Activities:

An on-site orientation meeting was conducted in early September. Participants included the Burn Boss, the peer review Burn Boss, the Assistant South Zone FMO and the Spanish Fork District Ranger. The peer review was completed and the Burn Plan approved in late September and early October respectively. The Burn Boss was provided the Burn Plan early-on and received information on plans, logistics and expectations from the Forest (Forest Supervisor, District Ranger, South Zone FMO and Uinta/W-C Fuels Specialist) through the month of September and early October.

The peer review of the burn plan (paper and on-site) was a value added exercise. For example it resulted in adjusting upward the cool end of the prescription, removing the 1,200 acre per day burning limitation and assuring that the burn plan provided for the option to use either the plastic sphere dispenser (PSD) or the helitorch ignition apparatus.

A public open house concerning this project was hosted in Provo on September 28. This and other contacts made by the Forest PAO to the media, the Congressional Delegation, local government officials and other interested parties resulted in greater acceptance and support for this project.

The South Zone FMO met with National Weather Service and Utah State Division of Air Quality personnel at their offices in Salt Lake City to review the burn prescription and smoke management requirements. This effort facilitated greater understanding of air quality requirements and compliance with State of Utah Department of Air Quality regulations.

An on-site orientation for Burn Module Overhead was conducted on October 13th. Participants included principal project, operations, safety logistics, and law enforcement personnel and the District Ranger.

Burn Performance/Execution:

On the October 14th and 15th daily operational periods (no night ops), briefings were conducted at the Strawberry VIS and at the Ruby Christiansen helibase. Two briefings were necessary because of inaccessibility (ground transportation) between the east and west sides of the burn unit. An Incident Action Plan (IAP) was provided to assigned personnel. Objectives were clearly communicated and personnel were

aware of their assignments and knew what was expected. A grid map was provided that greatly facilitated communications and coordination efforts.

Communications throughout the duration of the project were effective and reflected timely coordination of operations between holding and ignition resources. A high level of safety consciousness and awareness of environmental hazards was evidenced during briefings, operations and in communications between resources on the project. Effective actions were taken to mitigate hazards through application of LCES protocols.

For burnout (blacklining) operations, the RXI1 assigned the north line to an RXI1(t) and the east line to another RXI1(t). Experienced, organized crews were utilized for ground ignition and holding operations. This proved to be highly effective. The north line was black lined by the end of the first period and approximately 1/2 to 2/3rd of the east line was black lined as well.

Aerial ignition operations commenced early afternoon on the 14th and about 1/3rd of the 2,400 acre unit was treated by the end of the first period. By the end of the 15th approximately 1,800 acres had been treated. These operations were particularly effective in terms of treating targeted vegetation and keeping fire out of the non-targeted conifer stands.

Discussions between the Holding Boss, RXI1 and RXB1 mid-afternoon on the 15th resulted in dropping out several hundred acres on the south end of the unit. No active lighting occurred here. The basis for this decision by the Burn Boss included firefighter safety, the amount of non-targeted vegetation in this area, and anticipated resistance to control along the south boundary handline considering fuels, weather and topography. This was a well informed and reasonable decision.

The Position Task Books for trainees for the two Type 1 Ignition Specialists noted above as well as one Dozer Boss, one Fire Effects Monitor, and one Task Force Leader are ready to be reviewed for full certification. Other personnel in key positions (particularly aviation) maintained currency through this assignment.

Weather conditions (clearing index) were very favorable and smoke dispersal was excellent. Smoke was detected (anecdotal) for a short period (less than one hour) in the vicinity of the Daniels Summit on the 14th. A smoke monitor (DataRam) was set up at the Heber Ranger District office for this project. The availability of an on-site RAWS greatly facilitated informed decision making based on current weather observations and trends. This information was augmented by hourly weather and fuel moisture (including calculated ignition probabilities) manually taken and recorded.

Availability of needed resources and personnel from adjoining Districts, Forests and agencies (e.g., Utah County, State Lands, and BLM) was critical to the safe, timely and effective execution of this project.

Overhead personnel and assigned staffing displayed a considerable amount of flexibility and adaptability to changing conditions. For example, burn-out operations required a “go slow-to-go fast” approach because of the amount of line to be treated, variable fuels, and fuel moistures.

Limiting public access to the burn area and access roads was important to successful burn execution, particularly because of the ongoing limited elk season and the popularity of the area to hunters. Not having this closure in place would have resulted in a significant public safety issue and would have compromised the project.

The assignment of a discrete job code to this project greatly facilitated the collection and calculation of project specific unit costs of this resource management activity. The notion of having one job code for

multiple burn projects across two national forests and expecting equitable financing of individual projects to “come out in the wash” would be problematic.

Having a map of the burn unit with a grid system overlaid on it greatly facilitated communication and understanding about specific locations across a large and topographically diverse burn unit.

Ineffective Performance, Barriers, and Non-Standard Operating Procedures and Why Did They Occur?

Effective use of the limited window (weather) to treat the unit as a whole was hampered by the amount of time it took to prepare (burnout) control lines. Over five miles of the burn unit boundary required blacklining in advance of fully treating the interior of the unit with aerial ignition. When blacklining occurred early in the operational period, production was slow due to low temperatures and high one-hour fuel moistures. On the 14th and 15th, aerial ignition operations were delayed until mid-afternoon, in part because of the amount of time it took to secure (blackline) the north and northeastern boundaries.

A couple of other factors that delayed blacklining included treating pockets of highly flammable fir (clearing, limbing, etc.) and cutting through or going around isolated dead and down, 1000 hour fuels.

Holding the pre-briefing (brief of burn plan and on-site orientation) for key overhead the afternoon before planned ignition was somewhat of a rushed exercise that had the potential for less than a full understanding of strategy, tactics, and expectations.

Development of the burn plan, including the requisite silvicultural prescription did not commence in earnest until the end of February, 2004. In the aftermath of a recent escape on the Forest and the requirement to prepare a burn plan per new direction and in conformance with a new template, the planning effort called for a considerable amount of focused staff time. In other words, the stakes were high. The objective was to have an approved burn plan in place in time for a fall, 2004 burn. Although this objective was achieved at a high performance level, involved individuals felt that the timeframe was too short. Ideally, the burn plan should be completed several months to a year in advance of implementation. In the case of Halls Fork, this was difficult due to the workload and schedule the silviculturalist was faced with in preparing the silvicultural prescription.

Logistical needs (both personnel and equipment) were acquired on short notice for this project. Some crews and personnel did not report to the project until the second operational period. Swapping out of resources to accommodate other projects in the Zone had the potential for affecting safe and effective execution of the project.

Less than full use of NUIFC for dispatching was made. This was due in part because of fiscal barriers such as the inability to utilize equipment through EERA's and non-agency (not regular) personnel as “AD”s on a project (non-emergency). Additionally, the lack of reimbursable agreements with sister, federal agencies that apply to these types of projects is a barrier. The Forest is able to reimburse county and state resources under a cooperative agreement, but not able to do likewise for other federal partners. Because of these barriers, the logistical workload did not lend itself well to normal dispatching procedures.

Planning for and acquisition of logistical support needs was rushed as well as complicated by the barriers noted above. As a result, getting a set of resources “dedicated” to this project was problematic.

In part, because of the barriers noted above, much of the planning for and acquisition of logistical needs fell to, or was assumed by one individual. This undertaking was a somewhat behind the power curve and on

more of a “just-in-time” basis. In spite of these barriers, the resources called for in the Burn Plan were acquired and assigned to the project.

Not prioritizing burn projects between the two Forests coupled with a desire to keep unit costs down resulted in over-committing available resources to too many projects at one time. For example, one crew that had been oriented to the Halls Fork project and had worked on it the first operational period was assigned to another project the following day on the Wasatch-Cache National Forest. Another crew was brought in from off-Forest to replace this crew. This necessitated taking additional time to brief and orient a new resource when limited time (prescription window) was available. Additionally, personnel assigned to critical overhead positions were reassigned halfway through this project to another prescribed burn. At least one of these positions was left vacant even though it was on the IAP.

Along with the foregoing, discussions were entertained by overhead and other agency personnel to reassign and swap other critical resources to another project (e.g., helicopter and pilot). The decision was made not to pursue this course of action. Swapping resources mid-way through a short-term yet, highly complex project elevates the risk and potential for something to go wrong (“Murphy’s Law). More to the point, to do so requires additional precious time and effort to brief incoming personnel that did not have the benefit of the pre-burn orientation.

The IAP for this project had an incorrect map attached to it that was at odds with the approved Burn Plan (i.e., it displayed a contingency area where none was approved). This was mitigated by providing another map to assigned resources. However, having two different maps increased the potential for confusion and misunderstanding.

There continues to be some confusion as to the applicability of the so-called “48 Hour Rule” to management ignited prescribed burns and to wildland fire use fires. One interpretation is that this rule is only applicable to the latter. This needs to be cleared up with respect to management ignited burns as it has a bearing on when and if such fire exceeds its planned perimeter it would be declared an escaped fire. On the Halls Fork project there were two “slovers” on the north boundary. Although they were outside the burn unit boundary, they were inside the project area analyzed under NEPA. These spots were picked up and suppressed in a timely manner by resources assigned to the project and, therefore, clearly did not constitute an escape (see approved burn plan).

Why Did It Happen?

This discussion about why these things occurred is incorporated into the description of each issue noted immediately above. Two underlying themes for many of these issues were the short timeframe for preparing the burn plan and the narrow window of opportunity when the project area was in prescription (weather and fuel moisture parameters) for executing the burn. Many of these issues and barriers can be mitigated with lengthening the planning period for burn plan preparation, for pre-burn orientation, and for logistical preparation and acquisition of resources. The narrow prescription window is more problematic. However, setting these types of projects up for both fall and spring burns may help.

What Can Be Done Next Time?

Lessons Learned:

1. A big lesson learned was more of a reaffirmation that the Uinta NF has the professional and technical capabilities within its staff to plan and execute a complex prescribed burn project.

2. Guidance and protocols for developing burn plans in the new (2004) Interagency Prescribed Fire Handbook are applicable and relevant. Moreover, applying these standards assures a comprehensive and well thought-out plan. The peer review requirement did raise the confidence level that the burn plan was in compliance with agency policy and direction; that the complexity rating was appropriate; and that the prescription parameters and fire behavior calculations were appropriate and accurately calculated with respect to resource management objectives and predicted fire behavior outputs.
3. As demonstrated on this project, a comprehensive communications plan that is implemented early is critical to public support.
4. Upfront communications and coordination with the National Weather Service and Utah Department of Air Quality facilitate both understanding and support for our prescribed fire program activities.
5. On-site orientation of the Burn Module well in advance of the ignition date assures a high degree of confidence (internally within the module and externally by agency administrators) in a successful outcome.
6. Advance placement and use of portable RAWS station for these types of burns contributes immeasurably to a higher level of understanding of local weather trends and the influence of terrain on general weather patterns.
7. Use of the ICS organization and associated command and general staff functions is an efficient and effective way to approach the operational aspects of prescribed burn execution. A more developed use of the planning and logistical elements of ICS would have improved execution of this project.
8. Involvement by local agency administrators in coordination with fire staff (FMO's, fuels specialists, fire ecologist) and with key resource specialists assures compliance in terms of linking "plan-to-project" continuity. In other words these relationships help assure that the requirements (goals, objectives, mitigation measures, etc.) in the project Decision Notice and supporting vegetative prescriptions are carried forward into the Burn Plan.
9. Along with the foregoing, it is important to assure that the Incident Action Plan for the project faithfully reflects what has been approved in the Burn Plan (objectives, resources, maps, etc.).
10. Having a qualified Safety Officer assigned to the project raises the level of awareness and application of LCES by personnel on the project.
11. Large projects should be sectioned out into Divisions with appropriate overhead assigned to each.
12. More consideration should be given to pre-burn preparation. In the case of Halls Fork, pre-burn treatments focused on improving a control line on the south boundary. In addition to this, an alternative approach for the north and east boundaries would be to pre-treat (clear, lop and scatter, limb) and possibly burn out these lines ahead of unit ignition. These could be done so as to not take up valuable time when the bulk of the unit is within its prescription window and more effort could be devoted to taking advantage of that window.
13. Remaining flexible and adaptive to changing weather and fuels conditions is important. Taking a deliberative, "go slow-to-go fast" approach will help assure successful attainment of resource and operational objectives. In other words a high degree of situational awareness on the part of all assigned personnel is critical to success.

14. Provision of a project map with a grid overlay to project personnel facilitated communication and understanding during operations.
15. Use of type 1 crews is highly desirable for efficient and effective operations...particularly blacklining and holding.
16. Dedicating assigned resources to the project for the duration of its execution assures a greater rate of success. Conversely, swapping out resources has the potential for a lower success rate in executing these types of projects.
17. The availability and commitment of resources from adjacent units (Districts and Forests) including support personnel is important for assuring appropriate staffing.
18. Advance notification of and restricting public access assures a high degree of firefighter and public safety.
19. Assigning a discrete job code to each burn project will facilitate the collection of project specific unit costs.
20. With respect to planning for prescribed burn, a concerted effort by appropriate personnel over a short period of time can be an effective way to complete a burn plan. However there was some inefficiency with this accelerated approach (workload tradeoffs, scheduling impacts, risk of overlooking critical elements or process steps, etc.). Not allowing enough time to plan may result in shortcutting some key steps, thereby leading to less than desirable results.
21. More time ahead of burn execution should be allowed to identify, order, schedule and commit needed resources.
22. A mechanism (agreement) needs to be developed to facilitate interagency reimbursement between federal partners for these non-emergency projects.
23. Along with the foregoing, better use of NUIFC dispatching capabilities should be made in acquiring needed resources.
24. If carrying out multiple burn projects at the same time becomes the norm, either more resources need to be allocated or these projects will need to be sequenced so that they do not overlap. To do otherwise is to overtax available resources and compromise safe and effective execution of projects (see earlier discussion about swapping out and reassigning resources during the course of project execution).
25. The applicability of the “48-hour” rule to management ignited fires needs to be clarified.
26. Utilization of air quality monitoring equipment on complex prescribed burns facilitates communications and understanding between agency and Utah DAQ personnel with respect to compliance with air quality requirements.
27. Establishing and subscribing to a well thought out project action schedule for burn plan preparation and implementation is a useful tool for facilitating teamwork and assuring successful performance.
28. In the “GO/NO-GO” checklist, include an item concerning observed fire behavior and effects from the test burn meeting parameters identified in the burn plan.