

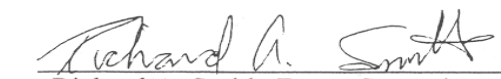
ANDERSON/DANSKIN  
AFTER ACTION REVIEW

Reviewed by:

  
\_\_\_\_\_  
Mike Dudley, Director, Aviation and Fire Management, R-4

4/4/03  
Date

Approved by:

  
\_\_\_\_\_  
Richard A. Smith, Forest Supervisor, Boise National Forest

3-3-2003  
Date

# **Anderson/Danskin Prescribed Fire After Action Review**

## **Emmett Ranger District, Boise National Forest**

### **Introduction**

On May 19, 2002, the Anderson and Danskin prescribed fires escaped on the Boise National Forest. The burns were located 36 miles northeast of Boise, Idaho, within a remote, unpopulated drainage of the Emmett Ranger District. The two prescribed fires were declared a single wildfire and suppression action was taken. The wildfire burned approximately 400 acres. The wildfire suppression bill approached \$400,000.

The Forest Supervisor of the Boise National Forest requested a Regional Office review of the escaped prescribed fires and the ensuing wildfire. A team was assembled and included: Regional Fuels Specialist, Forest Fire Management Staff, District Ranger, Forest Fuels Specialist, Type I Burn Boss, and the Prescribed Fire Manager.

The format for this review is based on a process for organizational learning developed by the U.S. Army—The “After Action Review (AAR).” The discussion, inquiry, and final report for an AAR assessment are constructed around four key questions. We have modified these questions below, using a prescribed fire context.

1. What did the Emmett Ranger District, Boise National Forest, set out to do with the Anderson/Danskin prescribed fires?
2. What actually happened on the Anderson/Danskin prescribed burns?
3. Why did the escapes happen on the Anderson/Danskin prescribed burns?

4. When we prescribe burn in similar fire environments, what are we going to do differently (or the reverse, continue to do in the same way) to minimize the chance of a prescribed fire escaping?

When AARs are used to evaluate burn operations, these assumptions are made:

- Fully qualified men and women implementing the line officer-approved prescriptions within a burning plan, do everything in their power to keep the burn within established control lines. This is a complex undertaking, fraught with the potential for mistakes.
- After a prescribed burn escapes, it is essential that all levels of the burning organization, not only the people lighting the match, attempt to learn as much as possible from the escape, then to pass these “lessons learned” on to the wider prescribed burning community, both regionally and nationally, so the same mistake will not be made again.

**What did the Emmett Ranger District set out to do with the Anderson/Danskin prescribed burn?**

Planning for the Anderson/Danskin prescribed burns began in 1999. In an effort to meet land management plan objectives; approximately 4,300 acres of natural fuels were targeted to be burned by prescribed fires. Primary burn objectives were to enhance wildlife winter range by improving forage/browse production. A secondary objective was to reduce surface fuels, thus lowering the risk of wildfire.

A categorical exclusion (CE) was prepared for the Anderson underburn, and an environmental assessment (EA) was prepared for the Danskin burn. The Danskin EA was developed by an environmental group concerned that the prescribed fire would change the undeveloped character of Peace Rock inventoried roadless area (IRA) (which was adjacent to the burn area).



**Figure 1: A representative overview of the topography and fuels (Douglas-fir and ponderosa pine) common to the Danskin and Anderson prescribed burn areas.**

After the EA and CE were approved, a silvicultural prescription and prescribed burning plan were prepared. Several burn objectives were established, including coarse woody debris retention, limits on the amount of mineral soil exposed, upper limits for postburn tree mortality, and protection of riparian habitat areas.

Detailed prescribed burn plans, meeting all requirements, qualifications and policy, were prepared and approved by the Forest Supervisor on March 18, 2002.

In preparation for the burns, the District began sampling fuel moistures and monitoring two RAWS units. Direct contact with the Boise Fire Weather Service was established.

In late April 2002, after the snow had melted at the lower elevations, the District, using the aerial ignition plastic sphere dispense, aerially ignited the burn units using the strip-head fire ignition pattern. The fires produced 2-4-foot flame lengths, minimal torching, and good smoke dispersion. The fire behavior the next day was described as “cold” with only a stump hole or two smoldering. Roughly 1,200+ acres were burned during this April burn-window.

The burn crew continued to monitor both the burns and the RAWS units, attempting to establish burn-window trends that might improve the efficiency of future ignitions.

The snow continued to melt at higher elevations, and the District, at 1200 hours on May 15, finished burning the units. Roughly 2,400 acres were burned during this second ignition.



**Figure 2: The Danskin burn at 1500 hours on May 15, 2002. An estimated 500 acres are burning.**

During this second burn, temperatures hovered in the low 60's and relative humidity readings were in the mid-20's. North aspects were still snow-covered and were being used as natural control lines. During ignition, fire behavior monitors were onsite, tracking weather, reporting fire behavior to the burn boss, and noting changes in the fire environment. At 1700, ignition was complete. Low fuel moistures on the southern aspects contributed to good fuel consumption; there was more torching than during the April ignition. As evening downslope winds began to dominate, the burn boss and crew returned to the Ranger District. Both burns were within established control lines.

The next day, a postburn helicopter flight was taken over the units. From May 15 through the early afternoon of May 19, fire behavior monitors on the ground continued to obtain onsite weather and fire behavior information. Active smoldering with afternoon flaming was occurring but higher fuel moistures on the northern exposures still checked the burn's spread.



**Figure 3: Example of a ground fire burning out in an area with higher fuel moistures.**

### **What actually happened?**

On Sunday, May 19, 2002, at 1530 hours, 4 days after originally igniting the prescribed fires, a high wind caused the burns to escape and to spread outside its maximum area boundary in two places. At the time of the escapes, fire behavior monitors measured wind speeds of 3035 mph. Valley temperatures were in the mid-80's with RH's in the teens. Both fires, on northern exposures at 6,000 feet elevation, were wind-driven crown fires burning in mixed ponderosa pine/Douglas-fir stands over snow. The Danskin escape was 70 acres and Anderson was 350 acres. A decision was made to monitor the fire situation through the early evening, and then to decide on an appropriate action early the next day.



**Figure 4: Crown fire mortality on the Danskin burn.**

On the morning of May 20, the Prescribed Fire Manager and the Type I Burn Boss took a helicopter reconnaissance of the prescribed burns and escapes. Since the fire had crossed the management area boundaries on both units, a WFSA was prepared and decision was made to declare it a wildfire. The suppression alternative selected was to stop the two spot fires from growing. Four Type 1 and two Type 2 suppression crews were used in the suppression operation. At its peak, 140 people were involved with the suppression action. Using hot-spotting techniques, the crews were able to contain the escapes, keeping the final fire size to the size of the initial escape. The fire continued to smolder and burn throughout the fire season. It was declared out in September.

### **Why did these burns escape?**

A strong, fast-moving, cold front passed through the area. Sustained high wind speeds associated with this frontal system pushed the prescribed burns outside their boundaries.



**Figure 5: The escape area showing 350 acres of the Anderson prescribed burn. Note the effects of a wind-driven crown fire.**

### **What are we going to do differently the next time?**

After a thorough review, the team had a difficult time saying exactly what they would do differently the next time. A wind event, with sustained wind speeds of 30 mph, was the single greatest cause of the prescribed fire escaping the burn units 4 days after ignition. However, whether it was humanly possible, 4 days in advance of the escape, to predict the wind event and the form the escape took, is debatable.

Prescribed fire typifies the concept of “managing the unexpected.” Weather is oftentimes not perfectly predicted, and human judgment must be used in interpreting “between the lines” with fire weather forecasts. Even though the burns escaped, the review showed the District burning team used good judgment and their decision-making processes were logical. We do suggest, however, the District consider the following advice before igniting the next burn.

- Establish closer ties with the National Weather Service, or other meteorological forecasting services, especially during the spring burning window and on weekends or holidays, so that specific one on one conversations about daily fire weather can occur.

### **What are we going to continue to do?**

- The preparation for this burn, from assessment through the burn plan, was exemplary.
- All burn personnel were qualified.
- A vegetation prescription was completed.
- Firefighter and public safety were always of highest concern.
- The burning prescription developed for the prescribed burning plan was followed.
- Good decision making processes were in place and used.
- Line officers were actively engaged in all stages of the burning operation.

- Good risk management was used. The escapes burned into areas that did not affect human populations or private property.
- District and Forest personnel displayed an honest, non-defensive attitude concerning the review.

### **Members of the After Action Review Team**

John Erickson, Emmett District Ranger

Guy Pence, Boise National Forest Fire Staff

Tamara Cook, Emmett Ranger District Fuels Specialist

Max Muffley, Emmett Ranger District Prescribed Fire Specialist

Deirdre Dether, Boise National Forest Fuels Specialist

Dave Thomas, Regional Fuels Specialist

Myron Hotinger, Lowman Ranger District Fuels Specialist

Evans Kuo, Idaho City Ranger District Fuels Specialist

Beth Lund, North Zone Fire Management Officer, Boise National Forest