

# Rapid Lesson Sharing

**Event Type:** Prescribed Fire Burn Injury

**Date:** March 27, 2022

**Location:** Antihorse Prescribed Fire,  
Black Hills National Forest, South Dakota

*How does one measure success?*

*Successful outcomes aren't always a perfect day—free of injury and accidents.*

*Success may be determined by how well  
we respond to adversity.*

## The Many Lessons, Challenges and Successes from this Prescribed Fire Burn Injury

### Narrative

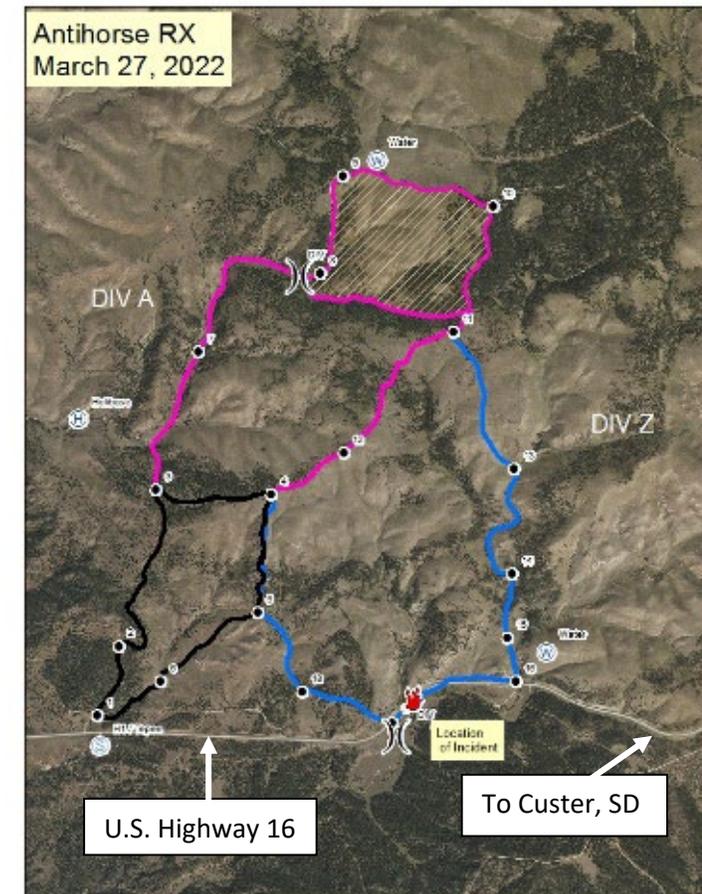
The Antihorse Prescribed Fire, ignited on March 20 and March 27, covered approximately 2,700 acres of U.S. Forest Service lands. The project area consists of isolated stands of ponderosa pine surrounded by a large contiguous fire-scarred landscape of upland grasses and the scattered boles of the pine trees that inhabited the stand prior to a wildfire event in 2000.

The goals and objectives of this prescribed fire were to: reduce the bole material and prep the landscape for tree planting, reduce surface fuels, and improve wildlife habitat.

The plan on March 27 was to utilize aerial operations to ignite the remaining unburned portion of Unit 1 and complete Unit 2 and 3.

Due to the size of the operation—nearly 2,400 acres—the prescribed fire was divided into two Divisions, Alpha and Zulu, staffed with fully qualified Division Supervisors. Their goal was to hold the burn and utilize hand ignition to create a blackline along the east and west portions of the prescribed fire, while the helicopter ignited the middle of the units.

Operations were successful and the primary ignition component of the burn was complete



around 1700. Following the completion of the aerial ignition, crews assigned to DivZ were continuing to hold and patrol the control lines and burn out isolated pockets of fuel along the control lines. A debrief was planned for 1800 at the staging area.

### Engine Crewmember Hears a Loud Bang

Just prior to ignitions completing at around 1650, an Engine Boss assigned to DivZ was utilizing a drip torch to burn out remaining islands of grass along the highway. The Engine Boss was having a difficult time with the drip torch and believed its fuel was bad.

He removed the torch's cap and attempted to pour out its remaining fuel. When doing so, flames from a nearby fuel source ignited the drip torch fuel.

An engine crewmember remembers hearing a loud pop or bang. When he turned to find the source, he saw the Engine Boss's left pant leg on fire. The Engine Boss was moving toward him.

The crewmember, standing by the engine, grabbed the charged hardline and extinguished the fire on the pant leg.

DivZ Supervisor, a certified EMT, arrived at the scene and requested to see the extent of the burn injury. At this point, the EMT noticed a small burn to the crux of the knee. A half-dollar-sized blister was also noted below the knee on the inside of the calf that was oozing fluid.

The Type 2 Prescribed Fire Burn Boss (RXB2) and the Type 2 Prescribed Fire Burn Boss Trainee (RXB2[t]) were also in the proximity of the incident and responded when they heard the vapor from the torch ignite.



Engine Boss's Pants – Note the darker brown burn mark on the pocket.



Approximately 20 minutes after the burn injury accident.

The Engine Boss, although in pain, was in good spirits and did not show signs nor complain of symptoms indicating any further trauma. It was decided to call this Incident Within an Incident a "Priority Green". They discussed a medical evacuation plan and determined, with consultation from the onsite EMT, that the Engine Boss was stable to transport to an emergency room via agency-owned vehicle.

### Transported to Level II Trauma Center

At this time, the RXB2 cell-phoned the Safety Officer assigned to the prescribed fire. The Safety Officer met with the Engine Boss and EMT/DIVS and began transport. The Engine Boss was transported to a Level II Trauma Center located approximately 30 minutes away.

While at the hospital emergency room, the treating certified nurse practitioner was concerned about the location of the burn injury closest to the knee and considered having the patient go to a burn center. However, the attending physician believed the wound could be treated with bacitracin and dressings, which was the course of action for treatment.

The Engine Boss was also referred for wound care at his local medical facility, and wound care is ongoing. The Engine Boss is expected to make a full recovery.



At the Hospital – One hour after incident. Note the development of the burn injury from first photo.

## Progression of Healing



Top panel contains images of the wounds assessed on March 28. Bottom panel's images were taken approximately one week later.

## Lessons Shared

### *What do folks now know that they wish they'd known before this event?*

1. Drip torch mix had been an issue throughout the day. Develop better protocols to reduce the likelihood that drip torch mix is near open flame—especially when transporting or refilling empty torches.
2. Burn Centers—which one? U.S. Forest Service Region 2 has two burn centers in relative proximity to each other. Hospital staff between the sending unit and the receiving unit may determine which facility will be chosen. Agency units should be prepared that a patient could go to either burn center.
3. There may be some discrepancies between OWCP or Albuquerque Service Center (ASC) requirements and medical center protocols. An example in this case: the attending physician initially refused to sign the CA16 (doctor signature required on CA16 form). While the agency can request it, the hospital may ultimately decide the course of patient care.

### *What would folks share with others who could be in a similar situation?*

1. It can be difficult to assess the severity of a burn injury because of the time it takes for the injury to fully evolve. Within one hour, what initially appeared to be a minor injury almost became a trip to a burn center.
2. The local area Level II Trauma Center generally does not care for burns that are beyond superficial. Field units should contact their local trauma centers and assess their abilities to manage burn injuries and discuss their protocols for treatment and transfer of patients with those injuries.
3. Based on the differences of opinion between the nurse practitioner and the attending physician regarding burn severity and course of treatment, a virtual burn consult with a burn center should have been considered.
4. Medical incident reporting to the local Dispatch Center was not completed because the injury was considered “Priority Green” and the assigned Safety Officer didn’t want to tie-up radio traffic. It has since been determined by the unit that any Incident Within an Incident should be reported to the local Dispatch Center. In this case, the local Dispatch Center should have been notified immediately. As an example, if the patient’s condition deteriorates and additional help is requested, the Dispatch Center would be unaware of the incident—which could delay their response to send assistance.
5. Despite our best efforts to maintain situational awareness and diligence to safety protocols, policies and procedures—accidents occur. In this case, the Engine Boss may have been too close to open flame when he decided to empty the drip torch of its fuel.

***What were some successes and challenges?***

**Challenges**

1. Fatigue from the weekend and the wind-down. The unit had experienced several initial attack fires prior to this prescribed fire. It is possible that some of the folks had experienced mental and physical fatigue by the end of shift.

**Successes**

1. In effort to achieve a successful prescribed fire outcome locally, a tremendous cooperative effort was required of all Districts on the unit—including great support from the unit’s reserve-ready employees.
2. How does one measure success? Successful outcomes aren’t always a perfect day—free of injury and accidents. Success may be determined by how well we respond to adversity.
3. Successful prescribed fire programs burn when wildfires can also burn. Professional fire managers work together to factor risk-based decisions into management actions.

***What actions can be taken moving forward?***

1. How can we incentivize and invest in EMT training for our fire and militia personnel?
2. We need to be proactive in finding ways to allow our reserve-ready employees to participate in additional prescribed fire training assignments. It was noted several times in follow-up discussions, the importance of suppression personnel assisting other land management entities and geographic areas with prescribed fire because of the experience of utilizing a variety of implementation methods—including aerial ignition (not often used on this unit).
3. Ensure that agreements with cooperators are up-to-date to increase local capacity to assist with prescribed fire and initial attack staffing.

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