Alkali Rim Prescribed Fire (TA-76)
Worland Field Office Wyoming
September 20, 2001 Incident Review

Background:

On September 20, 2001, an incident occurred on the Alkali Rim prescribed fire in block 1, that led to five employees (employee list attached) using their escape routes and safety zones to avoid an increase in fire behavior fueled by a wind switch and lowering relative humidities. No employees were injured and no fire shelters were deployed.

Operations on the prescribed burn had been progress for the previous two days. All blacklining had been done and the operations were concentrated on the interior of the burn unit. The operations had been hampered by low fire behavior caused by a previous one inch rain event. On the 20th, the fire behavior in the morning again had been low. It had been difficult to get the fire to carry in the fuels.

At about 1330 the five person crew had started to try to ignite a drainage bottom. At 1400 the fire behavior increased and the crew moved to their safety zones. Four people went up the west slope to the black on the flats. The fifth person who was furthest up the hill on the east facing slope went up that slope to a two track road on the ridgeline.

The igniters' crew leader immediately assembled the crew members and had an initial crew de-briefing. After the incident at about 1500, all the personnel on the burn gathered for a meeting to discuss the activity. By 1530 they were back to burning and burned until about 1630.

Review:

The Cody Associate Field Manager was informed of this incident on Friday September 21, by an employee, who was involved. He called the Wyoming State Office and the Worland Field Manager about the occurrence. On Monday September 24, it was decided to do an informal review of this incident to see if any corrective actions needed to be taken and to fully understand what had occurred.

A field trip was scheduled for Wednesday September 26 with the line officers, burn personnel and Wyoming State Office representation (List of attendees attached). The site was visited and the events leading up to, during and post event were discussed and recommendations made.

Physical/Environmental Description:

1. Weather was taken sporadically through the day. These weather readings were within prescription limits. An undocumented weather reading that was taken about 1400-1430 showed relative humidity of 16 percent. This was on the low end of the relative humidity, but still within limits. There was a wind switch from the general SW winds to an up-drainage northerly wind at 1400.
2. Fire behavior was low to moderate during the morning and early afternoon (1145 to

1400), with difficulty being experienced in getting the fire to carry. At 1400 the fire behavior increased and the drainage where the incident occurred was burnt with a active crown and associated surface fire that lasted approximately 30 to 45 minutes.

3. The topography that the incident occurred in was a steep drainage with 30 to 40% slope. The drainage was relatively shallow with the elevational distance from the bottom to the top of approximately 100 feet and slope distance of 200- 250 feet (Photos attached).

4. The fuels in the drainage bottom were thick closed canopy juniper that were about 20 feet in height. There was scattered discontinuous sagebrush and grass cover. The east facing slope was a more open juniper stand with sagebrush and grass understory. The west facing slope was fairly closed canopy juniper with little of no surface fuels.

5. The burn block 1 encompasses approximately 1200-1500 acres and with the slope and drainages, visibility is limited.

Procedures/Qualifications:

1. All personnel involved in the operations were fully qualified for their positions on the burn.

2. All personnel had hand held radios.

3. Of the personnel involved in the incident, three were on their first burn, one had limited experience and the leader was a qualified RXI2, although he was not performing in that role.

4. A pre-burn briefing was held on the morning of the 20th. Operational details were discussed. It is still unclear if the details were sufficient for all the participants. There was no signed briefing form in the packet for that operational period.

5. The burn plan is rated as a low complexity burn. According to national direction, this burn should have been rated as a Moderate complexity burn.

Incident:

1. At about 1330, the head of a group of three igniters tied in with the burn boss and was directed to fire out the drainage to attempt to get more heat built up to carry the fire. Two more burners from another group were assigned to this group.

2. They went into the bottom of the drainage and attempted to build up heat in the bottom and then burn in a quartering up-slope direction.

3. At 1400 the fire increased in intensity with the wind switch and lowering relative humidities and began a short crown fire run. The group of igniters made the decision to use their escape routes to safety zones. Four of the group went up the southwest facing slope that had discontinuous fuels to the rim of the drainage, where they set down their drip torches and proceeded to the black safety zone about 100 feet away. The fifth person decided not to cross in front of the fire to the west facing slope and went up the east facing slope to the ridge top two-track road. The crew was spread out over a distance of between 50 to 75 feet at the bottom of the drainage.

Findings:

1. Communications on how to burn out the drainage were unclear. The burn boss had one expectation, all of the crew members were unsure of how far the ignition was going up the drainage and the pattern of ignition.

2. The designated ignition specialists (ignition crew supervisors) were not on scene. They were operating a terra torch in another portion of the unit.

3. There were three ignition groups burning within the unit. None were supervised by a designated ignition specialist.

4. The burn boss was not in direct line of sight of the group in the drainage bottom.

5. The group was operating in an area of very limited visibility in a thick juniper stand. One igniter described almost crawling through the trees. This left them in an exposed position where they could not see wind switches or the initial increase in fire behavior.

6. The five people involved all showed good judgement in using their escape routes. They kept communicating with each other during the incident. The employee that went up the east facing slope made the decision to go that way based on fire behavior and proximity to the road.

7. Weather conditions sporadically taken throughout the day. There was no good continuity in weather taking.

Conclusions:

1. Communications: With unclear understanding of the ignition pattern, the people in the drainage had no clear understanding what they were doing.

2. The lack of on-the-scene designated ignition specialist oversight helped to lead to the

confusion.

3. There was no lookout posted on the ridgeline to watch for wind shifts and changes in fire behavior.

4. The relatively low fire behavior of the fire in the previous days lulled the burn personnel into a sense of complacency.

5. The majority of the personnel assigned to this prescribed fire had little experience in burning.

Recommendations:

1. A fully qualified and designated ignition specialist should be assigned to each group of igniters, especially when working in burn areas where visibility is limited. The ignition specialist should have no other operational duties except the supervision of the ignition crews.

2. Lookouts should be posted when crews are in areas of limited visibility.

3. The change in workforce composition from very experienced personnel to lesser experienced, necessitates a change in briefing needs. More complete briefings and encouragement of questions is needed. In addition to the overall briefing by the burn boss, the ignition specialist(s) should conduct a more specific briefing at the burn site so that the crew understands locations, methods, assignments and safety

4. The complexity level of the burn needs be changed to Moderate to reflect not only national direction but also the complexity of running three ignition crews on a large unit.

5. Clear assignments must be made regarding the taking and reporting of weather, lookout functions and other responsibilities. No assumptions should be made.

Attachments : Personnel Involved
ICS-214 Unit Log for Chuck Russell
Statement by XXXX
Photos of Drainage Site
Map of Alkali Rim Prescribed Fire
Weather Records for September 20, 2001
Alkali Rim Prescribed Fire Plan.

Submitted by:_____
Robert E. Means
Wyoming BLM Fuels and Prescribed Fire Specialist, Lead Reviewer

Personnel Involved in Prescribed Burn and Review

Personnel Involved in Prescribed Fire

RXB2 -
RXI2 -
RXI2 -
Ignition Crew Members
Crew Leader
CM1
CM2
CM3
CM4

Personnel Involved in Review Decision

FM Cody
- AFM Cody
FM Worland
AFM Worland
Acting DSD Support Services
- WYSO Fuels/RX Fire Specialist
- WYSO Acting State FMO, Fire Operations Specialist

Personnel Involved in Review

AFM Cody
AFM Worland
WYSO Fuels/RX Fire Specialist
RXB2 -
RXI2 -
RXI2 - Absent due to work assignment
Crew Leader - Absent due to family emergency
CM1
CM2
CM3
CM4

Alkali Rim Prescribed Fire Photos

Photo 1: Route four personnel took out of drainage in foreground. Rock outcrop on right is where drip torches were placed. Safety zone is 100 feet to the right in cold black.

Photo 2: Route 5th person took out of drainage on west slope to road on ridgeline. Route was next to the unburned area.

Photo 3: Overview of the prescribed burn block. Ignition started in bottom of drainage lower right.