LESSONS LEARNED

Northern Region Safety & Occupational Health

Hazard Tree - Fell or Blast

During the fall 2011, the forest approved a prescribed fire (hand piles) for burning. After a morning briefing with management, overhead and the field crews, it was determined that 11 firefighters would burn the 50 acre hand pile unit with drip torches. Ignition of the hand piles was performed as light snow and rain fell for most of the day. Monitoring of the area and other hand pile units recently burned was ongoing. At times, crews took action on individual piles digging line and mopping up to secure them from escape.

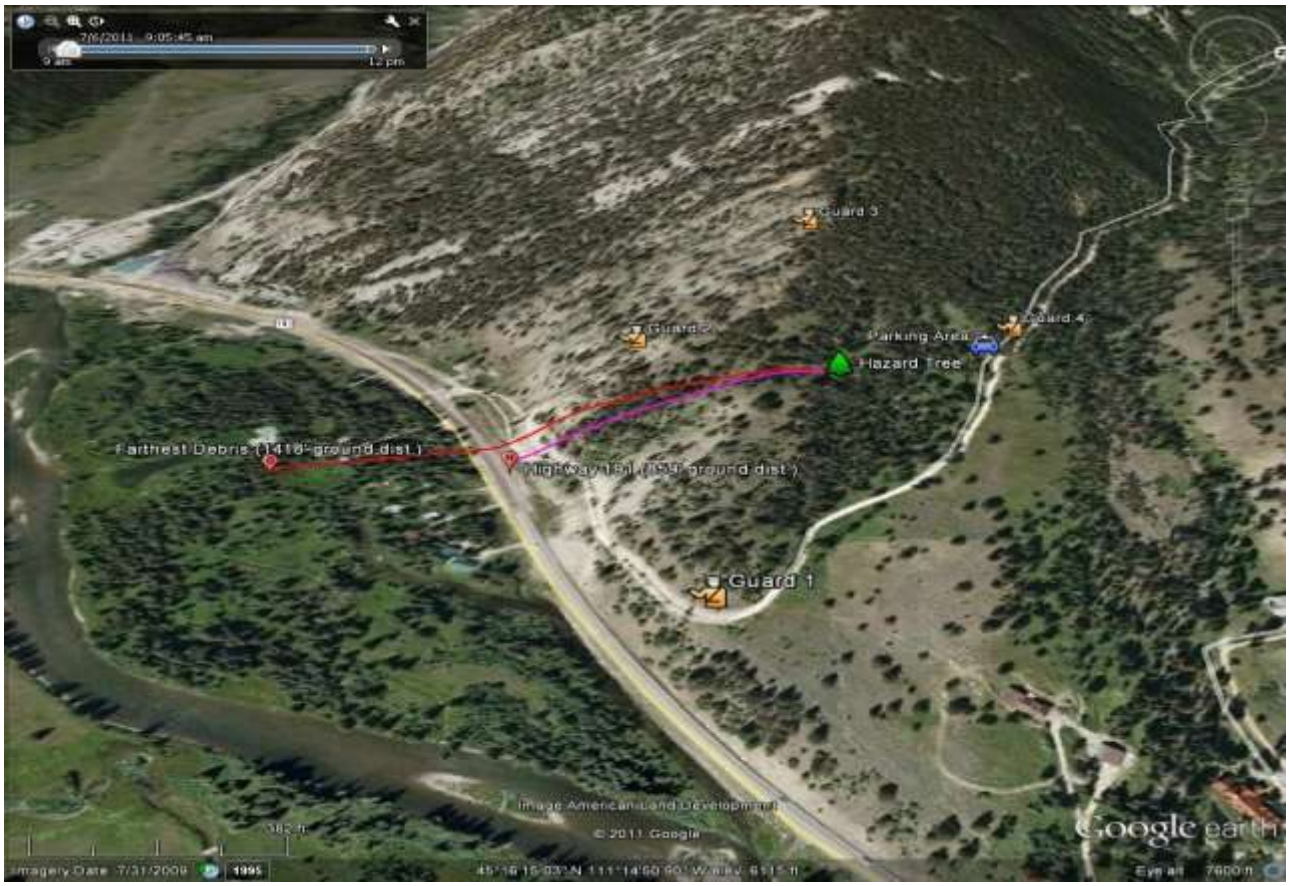
On the evening of October 18th, local rural fire dept. reported a single tree fire in the burn area. The District FMO and AFMO responded the following day and drove to the burn unit to scout out the reported tree fire. At approx. 13:00 hrs, they found a large 36" dbh Douglas fir tree 35 foot tall that was still smoking and burning in both the top and base of the tree with occasional baseball size blocks of red hot ember falling near its base. There was also a large burned out cat-face about 14ft off the ground and several large "widow maker" limbs lying free atop other still attached branches in the upper part of the tree. It was determined that the DF tree was 'hazardous' and needed to be felled to the ground so engine personnel could mop it up.

Additional support was requested by the AFMO and a type 6 engine and a local blaster were ordered through the local dispatch office. The engine arrived first and had two C-fallers on board. The AFMO asked them to assess the tree and they felt they could get the tree to the ground safely, but since the local blaster was in route, they would defer to the blaster.

When the blaster arrived he also assessed the tree and determined he could get the tree to the ground safely. All were in agreement to use explosives to get the tree safely to the ground. The blaster used a chainsaw to bore out two holes. Once completed a blasting briefing was completed and everyone moved a safe distance away and

guards posted. The blaster loaded the tree with explosives and made the shot. After the all clear was given and the return to the blast site, guard 2 said he had observed numerous pieces of debris launched eastward from the blasted tree toward the highway and private structures.

The blaster, AFMO, FMO, and firefighters gridded the areas of concern twice to determine how much and how far debris went. A few pieces of debris were found near the highway with the largest being baseball size. There were no vehicles on that section of the highway (per Guard 1) when the blast occurred and no property damage reported. Nothing was found gridding the private land and talking with the land owner.



Though red line indicates furthest debris flight seen, gridding on land across highway resulted in no debris found

WHAT WENT WELL

- Coordination with local agencies & dispatch.
- Calling in and conferring with additional resources.
- Decision to reduce exposure at the tree base by C-fallers.
- Good communications with road guards, lookouts, and dispatch prior to blast.
- Responding quickly to unintended debris field by a patrol of the highway and working with local land owner.
- FMO held an AAR discussion with field crews after the incident.

RECOMMENDATIONS

- More thorough monitoring and patrol of hand pile burn units to reduce opportunities for creeping and igniting unintended vegetation.
- Though the highway and buildings were not visible from the hazard tree blast site, greater care must be given when blasting takes place in an area where structures, highways, pastures with animals etc. are located.
- Discuss thoroughly the process and pre-work needed to blast the tree. Fell tree vs. Blast tree. Exposure time at base of tree was a concern no matter which method was used.
- Although the hazard tree blast was at the tail end of mopping up, the tree was still smoking and smoldering requiring full PPE (Nomex) should be worn throughout the operation.
- Leadership or overhead needs to recognize the lack of PPE.

LESSONS LEARNED

- If you are not sure… ask. Time at base of tree (exposure) was a major concern. This should have been communicated to the blaster when he arrived and/or it should have been part of the discussion when the blaster had determined how he was going to bring the tree down. When the hole boring was started to prep the tree for blasting, a time out should have been called to reassess and discuss risk management: a chainsaw to fell or using external charges only to blast it down or to walk away (the hardest thing to do).
- During any blasting operation, time must be taken to survey the surrounding area for anything that may be negatively affected by the blast. This includes the effects of flying debris and the distance it could travel, the shock wave (breaking windows) and noise (spooking animals). Conversations and questioning of on-site personnel could provide relevant information of potential “look out” situations also. The blast area surroundings must be factored into the blast design and methods used.