

Nut Hill Fire Facilitated Learning Analysis (FLA)

July 19, 2013

Nez Perce-Clearwater National Forest

Red River Ranger District



Summary

The Nut Hill Fire, spotted on July 19, 2013 at 1512 by the Oregon Butte Lookout, was located on the Red River Ranger District approximately 20 miles south of Elk City, Idaho, and 2.5 miles west of Dixie, Idaho. Started by lightning, it was burning in subalpine fir and lodge pole pine with numerous snags, and was burning mid-slope up to the ridge-top on an east facing aspect. The understory was bear grass and grouse whortle berry with enough large diameter woody debris to put the area into a Fuel Model 10 or TU5 (Timber Understory 5) (**Photo 1**).

Photo 1 – Looking upslope along the southern end of the fire showing the fuel loading and type in the Fire area.



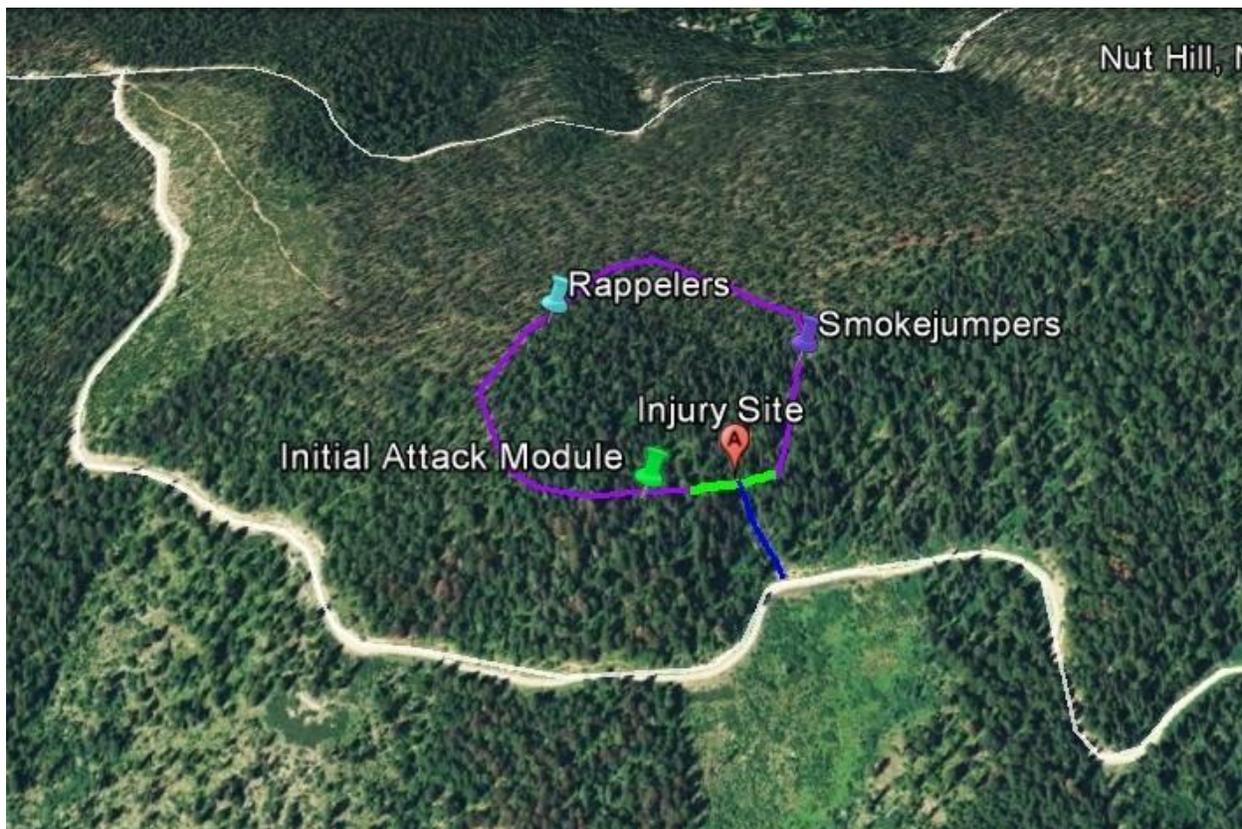
The fire behavior consisted of single and small group torching with the fire spread being primarily from torching sub-alpine fir. The surface rates of spread were less than 1 chain per hour with flame lengths less than 5 feet. The torching fire behavior resulted in 30-40 foot flame lengths with spotting out to 400 yards on the ridge top.

The fire was approximately 2 acres when it was initially attacked around 16:30 by a compliment of local Red River and Salmon River resources including an IA Module with 5 firefighters, 2 engines, and a couple of overhead; smokejumpers; heli-rapellers; and aviation resources including a Type 2 helicopter and two

single engine airtankers (SEATs). A Type 5 incident commander (IC) was initially in charge, but turned the fire over to a Type 4 IC that same evening.

The management strategy for the fire was full suppression using direct attack tactics. The focus of the suppression effort was felling hazard trees, digging hand line around the fire, and suppressing spot fires created by torching subalpine fir. The fire had grown from 2 acres at initial attack to 3 acres by 22:00.

The IC's plans for the fire was to complete construction of the fire line around the fire and then bed the resources down for the night at the road junction. The IC kept firefighters together working in squads as evening approached to prevent individuals from getting separated from each other in the dark.



The IA Module was instructed by the IC to construct handline at the southeast corner of the fire and work towards the smokejumpers constructing handline on the opposite flank. The IA Module identified hazard trees in the area and continued to identify hazard trees as they moved along constructing line. Although the hazard trees were not marked, they were verbally and visually identified to each member of the Module. A module member was felling hazard trees, working first on the trees thought to pose the greatest hazard to the firefighters.

There was less than a chain of handline left to construct to tie into the smokejumpers line as it began to get dark. The IA module was working to complete that portion of the line prior to bedding down for the night. As the IA Module continued to construct handline and it became darker, they lost track of their proximity to a 60 foot sub alpine fir snag that had previously been identified as a hazard tree when they

witnessed it burning in its split top. They were constructing fireline within 4 feet of the base of the hazard tree.

It was around 22:00 when one of the forks at the top of the snag broke and fell approximately 45 feet striking a firefighter in the head, shoulder and back, knocking the firefighter to the ground (**Photos 2, 3, and 4**).

Photo 2 – This is the stump of the snag that dropped its top on the firefighter. The base had a small scorch on the upslope side, which may have occurred after the incident.



Photo 3 – This is looking upslope into the canopy standing right below where the snag was located. The only other snag in this area, which happened to be sound, is in the center of this photo well into the interior of the fire.



Photo 4 – This is looking down hill at the snag that dropped its top on the firefighter. The snag was felled and the top was consumed by the fire.



Firefighters immediately adjacent pulled the tree top off of the injured firefighter. The base of the fallen top was 5-6 inches in diameter and was 7 to 9 feet long. The adjacent firefighters did an initial check of the injured firefighter's vital signs, state of consciousness, and looked for spinal or neck injuries. The firefighter never lost consciousness. The injured firefighter's first words were "was it the tree I was

worried about” (The snag was in fact, the one the firefighter was worried about). It appeared that the firefighter’s helmet and pack took the brunt of the impact from the falling top (**Photo 5**).

Photo 5 – Looking at the inside of the firefighter’s helmet, the only visual damage is the suspension bracket popped loose. The helmet was sent to MTDC for inspection.



The nearby smokejumpers immediately joined the module to provide assistance, and one of the smokejumpers with an EMT certification took charge of the medical incident. The EMT in charge designated an individual to take notes of all actions being taken to care for the injured individual.

After the initial assessment it was decided by the EMT that they should move the injured firefighter out of proximity of the snag. The injured firefighter was carried to the nearest road by following the hose lay down the hillside. Even though they attempted to clear a pathway, there were numerous downed logs and branches, as well as slick bear grass (**Photo 6**).

Six firefighters locked arms to carry the injured individual by side-stepping downhill approximately 800 feet, lighting the way with headlamps. An additional firefighter made sure the injured firefighter’s neck remained immobilized by holding the C-Spine in place. The final 20 feet was a cut-bank which required the injured firefighter to be daisy-chained down the hill to ensure good footing and safety of the patient (**Photo 7**).

It took less than one half hour from the time the injury occurred to reach the road. The injured firefighter was then placed in a sleeping bag along the road. The EMT maintained control of the medical incident and continued assessment of the individual every 5 minutes, until transferring control to the Elk City Ambulance.

Photo 6 – A view looking upslope along the route they carried the injured firefighter.



Photo 7 – A view looking at the cut bank the injured firefighter was passed down.



Simultaneously (around 2200), the IC communicated the accident to dispatch and requested an ambulance from Elk City. The IC requested that all firefighters on the incident cease suppression operations and he assumed the role of transmitting information to dispatch about the status of the injured firefighter.

An agency law enforcement officer (LEO) working in the area overheard the radio traffic and responded to the incident. This LEO was briefed by a firefighter not the IC or EMT about the status of the injured firefighter, which he then communicated to the responding Elk City Ambulance (EMS). This created some confusion as to the severity of the injuries. The information relayed by the LEO to the ambulance indicated a more severe injury than what was determined by the EMT. While in route, the responding EMS personnel decided that a medevac ship should be requested. The request was made through the

Idaho County 911 dispatch center by the Elk City Ambulance. The IC verified this request with Grangeville Dispatch Center as well.

The change from a ground transport response to a medevac transport was communicated to the resources on the ground, and they provided the lat and long of a previously identified helispot (**Photo 8**) to the Elk City Ambulance. The Elk City Ambulance passed that information along to the responding medevac transport who replied that they were 15-20 minutes out.

Photo 8 – A view of the helispot where the medevac ship landed.



Approximately one half hour after the injured firefighter was brought to the road, the Elk City ambulance arrived on scene. Due to the back country road which was the travel route from Elk City to the incident, the ambulance arrived one hour and 15 minutes after they had been requested. Patient care was immediately transferred to the EMS personnel. EMS then transported the individual to the helispot site, a rock pit 4.2 miles from the incident.

A firefighter assigned to guide the medevac ship into the helispot was readily able to contact the incoming helicopter on a frequency agreed upon preseason with area EMS responders. The medevac ship pilot requested that the firefighter assigned to the helispot shine a light, so the pilot could identify the exact location. The pilot picked up the location, assessed the landing area and landed.

The injured firefighter was transferred from the ambulance to the medevac ship and assessed by the ship paramedics. The medevac paramedics decided that the injured firefighter should be transported to

the hospital in Lewiston, Idaho. This information was passed along to the IC as well as to Grangeville Dispatch Center. At 2340, one firefighter was sent to Dixie Guard Station to facilitate communication by phone with District Fire Management Officer and informs him of the specifics of the accident and who was injured.

Once the injured firefighter was on the medevac ship and off the scene, the IC gathered all the resources, conducted an after action review (AAR) and made plans for the evening and the next shift.

The District Duty Officer (DO), District Fire Management Officer (DFMO), and District Ranger were actively engaged with the incident. These individuals made timely communications with the Forest FMO, Forest Supervisor, and Duty Officers who had resources on the fire. When the form of transport changed from ambulance to medevac ship, the District DO and DFMO recognized the need to find out exactly where the injured firefighter was going, so that there could be an agency liaison at the receiving hospital to assist with providing comfort to the firefighter and taking care of any administrative needs associated with checking into the hospital. They also utilized identifying characteristics (e.g. home unit of employee, age, gender) to identify the injured firefighter without naming the individual so that family could be contacted immediately. The DFMO contacted the injured firefighter's parents and along with the District Ranger and Duty Officer ensured that the parents had a ride to the hospital.

Lessons Learned—from Incident Firefighters

- They felt the injured firefighter should have been moved away from the snag sooner after the initial assessment. The initial assessment took approximately 7 minutes. The snag was a split top tree and still posed a danger from the other portion of top coming out of the snag. The further assessment for bleeding and back pain took an additional five minutes under the hazard tree before movement of the injured firefighter to the road.
- Following the hose lay down to the road and having folks clear a path ahead of them was an excellent strategy in the dark. With hindsight, given the EMT assessment of the injured firefighter the responders felt they could have taken more time to get the injured firefighter off of the fire, and allowed for some additional saw work that would have made carrying the firefighter somewhat easier.
- Firefighters pointed out that they need to listen to their instincts and voice their concerns so hazards and safety concerns are addressed.
- Ensuring that an agency LEO is requested because of their ability to readily communicate with County LEO and EMS resources was beneficial.
- Be prepared to direct a medevac ship in in the dark. Using a light source (head lamp) to identify the exact location of the helispot to the medevac pilot worked very well.
- Being able to identify the injured individual without using names allowed for the contacts to be made on the home unit and notification of the injured firefighter's family could begin. This can be difficult without using names over the radio, but it worked to identify which district the individual was from along with some identifying characteristics such as age, gender and height.

- Some firefighters wanted more information regarding the accident and continued operation. On initial and extended attack fires, the IC must ensure when there is an incident within-an-incident, that all resources on the fire are informed of the situation and current operations. This could be accomplished by the IC making an announcement over the radio informing fighters of the situation and confirming tactics and strategy with the remaining assigned resources.

Items for Future Consideration

- If overhead hazards are identified, even if the snags are lower priority to fall, make sure resources know they need to mitigate the risk posed by these hazards. This could be done in many ways, such as moving line placement or working in other areas until the overhead hazard can be effectively dealt with.
- Mark all hazard trees in proximity to the fire line to ensure the hazards are recognized and mitigated.
- Firefighters need to continually evaluate the risk to themselves and co-workers and determine whether the risk is commensurate with meeting the objectives of the mission.
- It is recommended that firefighters with potential spine injuries are transported with a backboard or similar piece of equipment. Units should consider how they can address this need based on their firefighting operations and access to this type of equipment.
- As more and more bug kill occurs in the Western Forests, we must increase our vigilance about snag hazard awareness and the effects on the safety of our firefighting operations. We must resist becoming complacent and accepting this as a normal working environment.
- Transitioning from working during day-light hours to working at night can have the similar effect of a shift change where visibility and situational awareness may change or become compromised. Ensure that firefighters re-establish locations of hazards, safety zones, and escape routes. Adjust operational strategy and tactics if needed during night operations.
- If there is going to be an extended response time for ground transport, and there is some uncertainty about the severity of the injury, request a medevac ship. In many cases having both an ambulance and medevac ship responding will ensure rapid transport of the patient. In this situation, it was helpful to have the ambulance to transport the patient to a helispot. Then the medevac ship was able to take the patient to Lewiston within 30 minutes versus a 3-hour drive to Grangeville and then a flight to Lewiston.
- All communications with Dispatch and EMS personnel should use established lines of command to reduce the chance of confusion. In this case it would have been better if all communications had gone through the IC who had assumed the role of transmitting all information to Dispatch.

Commendations

- Past training with implementation of the Dutch Creek Protocols ensured that the initial attack resources were thinking about injuries and the related medical responses from the beginning. The Initial Attack IC had readily identified the rock pit as a helispot for medevac and was well

aware of the EMS resources available in Elk City. It is a Forest safety protocol to pre-identify medevac sites for any work location.

- Once medevac was identified as the mode of transport, the unit made logistical preparations for an agency representative to be at the hospital to meet the injured firefighter and also ensured the parents of the firefighter had transportation to the hospital.
- One person was sent to the nearby guard station to telephone the District in order to enhance communications to duty officers, line officers and other necessary personnel.
- The EMT in charge of the injury incident readily established a command presence, identified someone to take notes, recognized the need to move the patient out of danger to the road, and maintained control of the incident while continually reassessing the patient every 5 minutes until the Elk City Ambulance arrived.
- The injured firefighter was wearing all required personal protective equipment (PPE) including a helmet that was less than 5 years old. The helmet performed as it was supposed to by protecting the firefighter from head injuries.
- The IC kept firefighters together working in squads as evening approached to prevent individuals from getting separated from each other in the dark. There were other crew members immediately adjacent to the injured firefighter at the time the snag broke.
- Everyone maintained focus to only their assigned task so there was no confusion created during the response.

The Facilitative Analysis Learning Team would like to thank all the firefighters and the Nez Perce/Clearwater NF personnel for their cooperation and willingness to share their experience for the benefit of others.

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