Deer Park Wildfire

Firefighter Injury and Helicopter Incident- August 10, 2010

Facilitated Learning Analysis

"The organization is ethically and morally obligated to put an EMS program in place that is supported by the organization, and given the standardized training and equipment to make the program succeed."

Senior Firefighter/Paramedic, Sawtooth Helitack Crew

USDA Forest Service, Eastern Great Basin Region,

Sawtooth National Forest

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Executive Summary

The Deer Park Wildfire was ignited by lightning in remote and rugged terrain on the Sawtooth National Forest, located in central Idaho, on August 6, 2010. Smokejumpers were ordered to staff the fire, which due to dry conditions and high winds quickly grew to several hundred acres. Smokejumpers set up a Type 3 Incident Management Team and ordered additional resources, including 5 Hotshot and 3 Type 2 IA crews.

On August 10, several Hotshot crews were going to implement a burnout operation in Division C, between their handline and the main fire on the northwest flank of the incident. After briefing the crews and establishing LCES, personnel were moving into position for the burnout operation. A lookout from the Flathead IHC was designated, and began to hike up the ridge to find a suitable position to observe the burnout operation.

While walking up the ridgeline on roughly a 35% slope, the lookout stumbled and reached towards the rocks to steady his balance. This caused an approximately 200 pound boulder to slide free which rolled and pinned the lookout against other rocks. The lookout radioed back to the crew that he had sustained a possible femur fracture.

As the ensuing medical evacuation was in progress, a lifeflight helicopter was dispatched to the scene. Ground personnel were repeatedly unable to contact the helicopter. After landing at the medivac spot, the helicopter tipped backwards onto its tail boom, rendering the helicopter and medivac spot unusable for the medical evacuation.

A second medivac spot was created, and an agency contracted helicopter was used to medivac the patient and medical personnel to the Deer Park helibase. He was transferred to a National Guard helicopter and transported to Boise for treatment, and is currently recovering from his injuries at home.

Chronology of Events

August 10, 2010

1027- First medical call is received by fire leadership of an injury on Division C. A brief description is relayed of the injury and victim, and EMT's and various other personnel are dispatched to the location of the victim.

1030- Call is received that injury is a possible femur fracture from a rolled boulder, and request for a medivac is relayed to Division C.

1035- Squad leader from Flathead IHC established as Incident Commander of medical situation, and EMT's begin to assess and treat the patient.

1040- Division C tactical radio frequency is cleared for medical emergency traffic only, and a request for a lifeflight helicopter for patient evacuation is ordered.

1045- Dispatch contacts Lifeflight and relays pertinent medical information and radio frequencies.

1040-1050- Multiple saw teams improve Medivac Spot 1 in preparation for patient medivac.

1054- Backboard and medical supplies arrive via sling load at accident site.

1056- Message relayed to operations from Lifeflight A, helicopter is spooling up, ETA 28 minutes from scene.

1100- Secondary Medivac spot discovered, and Incident Commander established to run Medivac Spot #1 construction.

1130- Lifeflight A arrives on scene, and ground personnel are unable to establish communications with helicopter.

1135- Lifeflight A lands at Medivac Spot 1, flight nurse exits helicopter, assesses landing zone, and discusses situation with Medivac Spot 1 marshal. Marshal relays that helicopter should remain at full power as victim is minutes away from being loaded. Flight nurse returns and talks to pilot.

1140- Lifeflight A shuts down power. As helicopter is spooling down it tips backwards and comes to rest on the bottom of its internal fan tail rotor. Pilot exits helicopter safely.

1144- Information is relayed to medical personnel that there has been an issue with the helicopter, and to hold victim in place. Lifeflight medical personnel head towards victim's location.

1148- Construction begins on Medivac Spot #2 located 100 yards above victim's location. Lifeflight medical personnel assume command of patient care.

1224- Personnel on scene meet and clarify incident organization. Separate individuals are established as Incident Commanders of Helicopter Issue, Medivac Spot #2 construction, patient care, and fire suppression activities in Division C.

1240-1250- Personnel stabilize Lifeflight A. Alternate plan to use Helicopter 352 for patient removal from Medivac Spot #2 is established. Construction of Medivac Spot #2 continues.

1252- Operations is informed by dispatch that a National Guard hoist capable helicopter is in route to incident.

1325-1335- Supplies arrive via slingload at Medivac Spot #1 and Lifeflight A is secured.

1402-1408- Medivac Spot #2 is completed. Helicopter 352 flies over and approves Medivac Spot #2. Personnel resume moving patient towards Medivac Spot #2.

1410- Helicopter 352 sets down at Medivac Spot #2.

1415- National Guard hoist capable helicopter arrives at Deer Park Helibase.

1417- Patient arrives at Medivac Spot #2. Patient is loaded with lifeflight medical personnel and fire paramedic. Helicopter 352 departs for Deer Park helibase.

1450- Helicopter 352 lands at Deer Park Helibase. Patient and caregivers are transferred to a larger and faster National Guard helicopter to facilitate in-flight medical care. Helicopter departs for Boise St. Alphonsus Trauma Center.

1730-1830- Lifeflight B arrives at Medivac Spot #2 with helicopter mechanic. Mechanic assesses Lifeflight A. Smokejumpers, Flathead and Texas Canyon IHC's return Lifeflight A to a level position on the Medivac Spot #1 heli-pad.

1930-1945- Lifeflight A conducts run up checks and departs Medivac Spot #1.

August 11, 2010

Sawtooth National Forest acting Forest Supervisor requests a team to conduct a Facilitated Learning Analysis (FLA) of firefighter injury and helicopter incident within an incident.

Lessons Learned and Shared

A key theme that needs to be stressed in this report is that the vast majority of our findings are based on the successful actions and leadership that was taken by the firefighters on the ground. This report intends to highlight the positive decisions that were made and pass on lessons that other firefighters can learn from these crews and the timely decisions and creative tactics that they used to successfully navigate this challenging incident.

It should also be noted that the Smokejumpers, Hotshot and Helitack crews, and various other overhead involved in this incident are successfully implementing Forest Service Fire Doctrine, as well as the five principles of High Reliability Organizations. The leadership shown by fire overhead as well as the medical and EMT personnel on the ground was truly exemplary and is a testament to the training and professionalism these crews have achieved.

The focus of this FLA was not directed towards the technical aspects and decision making of the aviation operations that occurred in conjunction with the firefighter injury. Such technical aspects of aviation operations may be reviewed by the companies involved, but are not affiliated in any way to this agency FLA.

The FLA team asked participants to share the lessons they learned from the incident and what they thought could be shared with others to help improve safety, leadership, or other aspects of fireline operations. The recommendations that follow are based on those observations and lessons, and secondarily from the FLA team's observations from their perspective as the review team.

Recommendations from Lessons Learned

The FLA Team had dialogue with all the key players involved in the Deer Park injury and incident within an incident. During these conversations the participants shared lessons they learned from the incident that they felt would reduce the likelihood or the severity of a similar accident. The FLA team collected and summarized these lessons learned into the following five categories:

1. Improve and Standardize Emergency Medical Standards, Training and Equipment.

The agency is failing to provide an adequate level of medical training and equipment to firefighters on the ground. Given the dangers associated with firefighting and all-risk assignments, more medical training and equipment is essential to ensure that the stated agency mission of "providing for firefighter and public safety" can be realistically achieved.

A. Provide for EMT and advanced medical training (including Paramedic and Wilderness EMT).

The agency needs to provide financial or career development incentives to firefighters who are willing to pursue training as EMT's. Given the risks associated with the work we ask our firefighters to accomplish, it is imperative to provide both initial training as well as opportunities to establish and maintain currency throughout the United States.

B. Increase the quality of National Fire Equipment System (NFES) cache medical supplies.

Medical supplies that are currently available through the NFES inventory are inadequate to meet the complex medical needs of firefighters on the majority of fires and all-risk assignments. Advanced trauma supplies, including bone splints, AED's, oxygen, IV treatment, collapsible Stokes litter, Spider straps, and blood clotting materials need to be standardized and available through the NFES system.

C. Configure agency helicopters with extraction capability.

Agency aircraft are best suited to deal with accidents that occur on the fireline. More agency rotor-wing aircraft need to be equipped with the capability to perform extractions for medical emergencies. All methods of remote extraction should be evaluated and a standardized system of operation should be established. Our reliance on military and lifeflight helicopters to extract our most serious injuries needs to be reduced. These helicopters are not always available, and extraction capable agency helicopters would alleviate communication issues and provide more timely patient care.

2. Establish Better Communication Standards with Cooperating Partners.

More effort needs to be made by all agency units to establish clearer communication channels with agency partners and emergency service providers. It was clarified that not all aviation resources are monitoring Forest Service "Air Guard" frequencies. This needs to be relayed to other crews that may assume "Air Guard" is a universally monitored communication channel.

Forest Service radios are primarily set to narrow band, but they do have the capability of transmitting on wide band. Lifeflight air ambulances tend to be wide band and setting these two the same will enhance the success of communications.

The participants further recommended that agency units should coordinate with offsite medical evacuation organizations as part of pre-season training and continuing operations. In addition, these contacts should be revisited as an initial step when responding to emerging incidents and extended attack. By providing an Aviation Procedures Guide to civilian agencies, it will give them time to program their radios and make coordinated efforts for contingency plans. By coordinating and communicating with organizations that provide medical support, and rehearsing prior to fire season the efficiency and effectiveness of operations will be greatly enhanced when an evacuation is required.

3. Review Communication Protocols.

Participants felt agency personnel should adhere to standardized communication procedures. Victim names should not be requested to be broadcast over agency radio systems. Updates on a victim's condition and suggestions/feedback from dispatch should be kept to a minimum to insure open communication channels, and to allow ground personnel to work in an environment free of distractions. A higher level of vigilance towards recording all communications into dispatch record log books is also important. These include summaries of all phone calls, notes and verbal messages in addition to 2-way radio traffic. A high level accuracy and completeness needs to be maintained to ensure these logs remain a critical source of incident information.

4. Emulate Positive Aspects of the Type I Firefighter Program.

Throughout the FLA process Type I firefighters demonstrated an exceptional level of professionalism and fireline leadership that exceeded the standards set forth by the agency. Successful incident leadership was established and remained deliberate and organized throughout this complex emergency. One example of such professionalism is the high number of EMT's typically present amongst the Hotshots and Smokejumpers, many of which have trained at their own expense and risk of liability. While there is no agency requirement or policy direction for EMT's to be part of a type I crew, these crews and many others often possess multiple EMT's or paramedics. Hotshots, Smokejumpers and Helitack have recognized the critical need to have this higher level of medically trained personnel. By doing so, these individuals and crews are going beyond the call of duty to protect their fellow firefighters and the public, and deserve to be recognized for their efforts.

Other lessons that can be learned from these crews include their successful implementation of the "Conveyor Belt" method of patient transport (see Appendix). These crews were prepared by pre-staging medical equipment at Helispot #2. They had trained pre-season with local Lifeflight contractors and EMS. Helitack had trained to re-configure their aircraft prior to fire season to be ready for medical emergencies. The practice suggested by these crews of establishing or creating medical evacuation sites as the crew progresses in a similar manner to safety zone assessment is an excellent practice that should be replicated.

The foresight of ground personnel to establish a multi-tiered incident command system is also noteworthy. By designating separate incident commanders for two medivac spots, patient care, helicopter stabilization, and Division C, personnel were able to mitigate a complex organizational problem. This adaptation contributed to the success of the mission at hand, and can be a great lesson for dealing with multiple incidents.

5. **Distribute Dutch Creek Investigation Report Implementation guidelines more extensively to ground level firefighters and management teams.**

Ground personnel felt valuable lessons could be learned from the Dutch Creek Incident and the recommendations that followed, but they have not been adequately distributed to ground resources and incident management teams. We encourage the agency to better disseminate this type of information through all available methods to ensure these lessons reach all our employees and fellow firefighters.

Sharing Lessons Learned.

The FLA team recommends posting this document on the Wildland Fire Lessons Learned Center website as well as other appropriate places to draw attention to the positive aspects and excellent examples of leadership and professionalism. We also recommend this event be incorporated into curriculum development by NWCG and utilized as a sand table exercise. Many lessons can be easily replicated or incorporated into district and agency training. Click on these Hyperlinks for the:

Deer Park Accident Description Video

Deer Park Incident Map

Flathead IHC Video of "Conveyor Belt" method of patient transport

Summary

The injury that occurred on the Deer Park fire was an unfortunate accident. However, the positive actions demonstrated during the incident are a testament to the professionalism and character of the personnel involved. Thanks to their exemplary leadership and creative problem solving, these crews executed an amazingly fast and safe evacuation.

Out of respect for the professionalism and sacrifice our employees make on a daily basis, we agree that the Forest Service is ethically as well as morally obligated to make significant changes to communication systems and procedures as well as emergency equipment and training. Our employees and firefighters are giving 110% of what we ask of them; it is a worthy goal for their employers to do the same.

Special Thanks

All ground personnel involved in the Deer Park Incident deserve commendation for a job well done. In particular, members of the Flathead and Texas Canyon Hotshot crews, Sawtooth Helitack, and the Smokejumper type 3 Incident Management Team. Your actions were directly responsible for the positive outcome of this incident. Your peers thank you.

Team Members

Steven Zachry, Northern Region Fire Risk Management (FLA Team Leader)

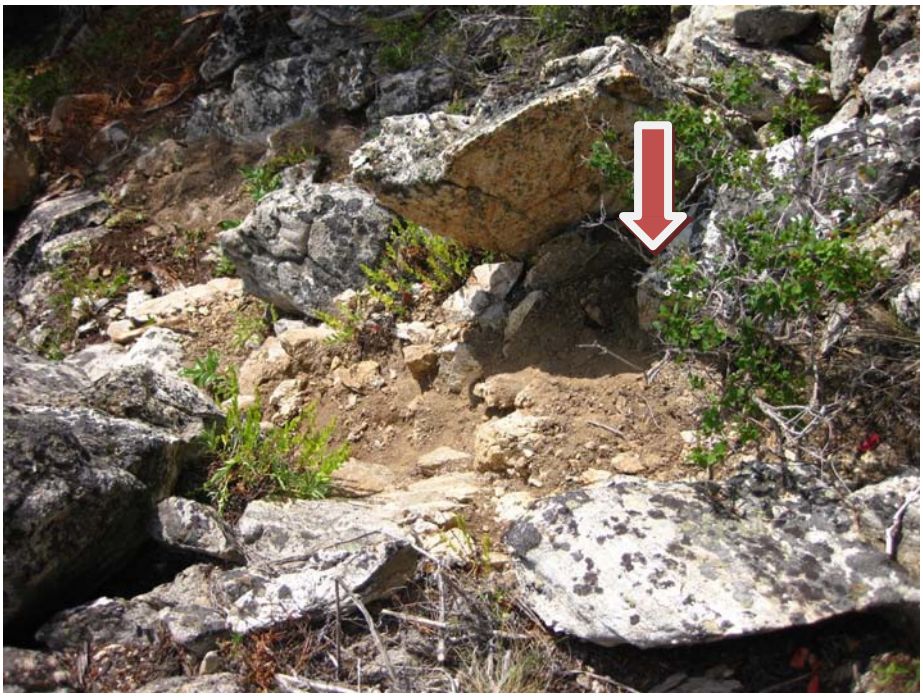
Mark Edinger, Bridger-Teton Safety and Occupational Health Advisor (Aviation and Safety)

Dale Snyder, Prescribed Fire Module Leader, Davy Crockett NF (IHC Peer and EMS subject matter expert)

Dan Cottrell, Missoula Smokejumper Squad Leader (Smokejumper Peer Advisor and Writer)

Appendix A (Photo Series):

The rock that was dislodged by the patient and striking the patient causing a left femur fracture.



Injury site. Arrow indicates where the rock was dislodged from.

Injury site. Looking from top down slope. Arrow indicates location where patient is stuck by the rock and pinned against another rock.

Injury site. Photo looking up slope from the final resting point of the dislodged rock.

Patient being “Conveyer Belt” transported by Flathead IHC and Texas Canyon IHC from injury site towards Medivac spot #1.

Lifeflight A at Medivac Spot #1 after settling on tail boom, photo taken from Helicopter#352 looking north.

Briefing on the loading of patient into Helicopter 352 between Flathead IHC, Lifeflight Nurse and Sawtooth Helitack Paramedic.

Helicopter 352 at Medivac Spot #2.

Flathead and Texas Canyon IHC “conveyor belting” patient towards Helicopter 352 at Medivac Spot #2.

Lifeflight A secured to trees using long lines, tow straps and come-a-longs.

Smokejumpers, Flathead IHC and Texas Canyon IHC using pure horse power and ingenuity to get Lifeflight A leveled and back on the pad at medivac spot #1.

Lifeflight A back to a level position getting ready to perform run ups and system checks.