

Lost Lake Fire

Chainsaw Incident

Facilitated Learning Analysis



Summary

The Lost Lake Facilitative Learning Analysis (FLA) was requested by the Forest Supervisor of the Shoshone National Forest in response to a firefighter receiving a chainsaw injury. The injury occurred while performing indirect line construction on the Lost Lake Fire.

The firefighter had felled a tree and was in the initial stages of 'low stumping' when a violent chainsaw 'kickback' occurred causing the injury. The firefighter was evaluated by on-site EMTs, treated on scene, and transported to West Park Hospital in Cody, WY with a non-life threatening injury. The firefighter was released from the hospital the following day, August 22, 2013.

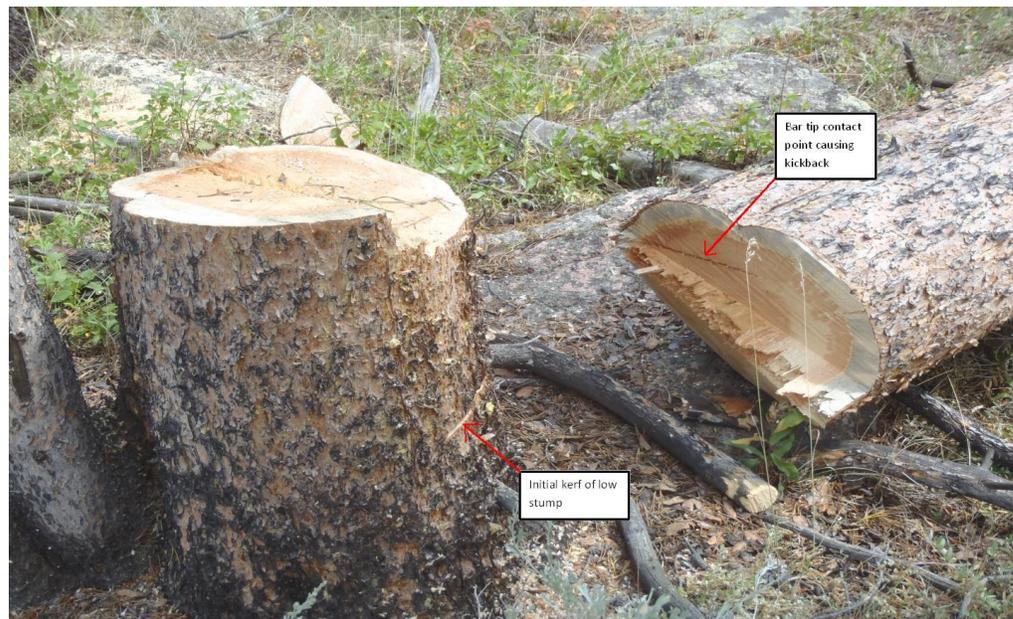
The Story

August 21, 2013 at approximately 0930 hours, a Type 1 Interagency Hotshot crew begins work on the Lost Lake Fire. This is their first assignment after days off from their last tour, their assignment, and instructions being to prepare a road if needed to burn off in the future, requiring the felling of some of the trees in the area. During this line construction, a seasoned sawyer with many years of quality saw experience, using an older model Stihl 046 chainsaw with a twenty-eight inch bar, began low stumping¹ a tree he had just felled. During this, his saw was 'bogging' out - though he had checked and cleaned out the air filter after felling the tree due to the saw bogging - the bogging continued when he began low stumping.

As soon as he began low stumping, the tip of the saw bar contacted the butt end of the felled tree that was lying on the ground, causing the chain saw to violently 'kickback' striking the firefighter on the lower inside of

Accident Site

his right leg below the knee, but above his ten (10) inch boot top. He's unsure if the mechanical bogging out of his saw played any part in the saw kickback, but feels there is a possibility he may have subconsciously rotated the saw because of the bogging so that he was cutting closer to the power head,



¹ 'Low stumping' is the process of cutting the tree stump to less than twelve (12) inches, after the tree has been felled. The reason for low stumping is that the initial felling of a tree is a much higher risk activity, thus the sawyer may need to make a higher cut so that his/her footing and balance is better, and a quick escape route exists, if needed. Low stumping is a common practice in campgrounds, for recreation trails and near roadway areas for prevention of vehicles becoming snagged on the stumps, as well as for general aesthetics.

tipping the bar in a higher position, thus contacting the butt of the felled tree. At the time of the accident, he was wearing 10-inch high boots and chainsaw chaps. However, the lower end chaps legging (that normally overlaps the boot top for cut protection) had rolled over on itself due to the nature of his stance (squatting) so that no cut protection was present from the chaps. His swamper was not present during the low stumping operation, nor required, and thus not affected by the kickback, or part of the response.

Once the kickback and subsequent injury occurred, the firefighter called out to the Crew Superintendent that he had just cut himself “to the bone”. Upon notification, the Superintendent proceeded to administer first aid to the firefighter and called for an EMT. When the nearest EMT arrived at the scene, he found the injured firefighter applying pressure with 4X4 gauze bandages that the Crew Superintendent provided. The Crew Superintendent’s gauze bandages are items he carries with his personal first aid kit that he put together. Medical attention of the firefighter was transferred from the Superintendent to the EMT, with the Superintendent assisting. The EMT and Crew Superintendent removed the sock and boot from the firefighter’s right leg to assess the cut and though it was very deep, they quickly determined it was a non-life threatening injury. The EMT continued treating for the bleeding by adding gauze and wrapping the wound.

The nearby Assistant Superintendent responded to the scene upon seeing that medical attention was in progress for the firefighter and he, being that the Superintendent was assisting the EMT, began coordination of the medical emergency, which had become an ‘incident within an incident’. The Assistant Superintendent radioed Fire Operations of the incident and the medical decision to self-transport the patient to the nearest hospital. Operations copied and directed the line EMT to respond to the incident.

The injured firefighter was bandaged, prepped for transport, and taken to West Park Hospital in Cody, Wyoming with an EMT accompanying him. The fire fighters treatment, received at the hospital, was stitches and prophylactic treatment for infection. He was released the following afternoon, August 22, 2013 with a long recovery ahead.

Timeline

Time	Action
8/21/2013 09:30	<ul style="list-style-type: none">• Crew begins work assignment of road prep.
13:28	<ul style="list-style-type: none">• Firefighter (Sawyer) receives a cut to the leg from a chainsaw kickback.
13:28	<ul style="list-style-type: none">• Crew Superintendent is verbally called by the sawyer and he immediately arrives on scene.• Crew Superintendent gloves up and starts first aid.• Crew Superintendent calls for an EMT.• A close by EMT hears the traffic and heads to the location.• The Crew Assistant Superintendent is also close by and responds.

13:30	<ul style="list-style-type: none">• Close by EMT arrives on scene and takes over care from the Superintendent.• The Crew Forman calls Fire Operations about the incident.
13:34	<ul style="list-style-type: none">• Line EMT arrives.• EMTs have controlled the bleeding and have the firefighter ready to be transported.• EMT radios Fire Operations with patient update and plan to self-transport to Cody hospital.
14:03	<ul style="list-style-type: none">• Cody Dispatch is notified that there has been a non-emergency medical incident. The firefighter is being transported by crew vehicle to the hospital in Cody.
15:45	<ul style="list-style-type: none">• Firefighter arrives at the hospital.
8/22/2013	<ul style="list-style-type: none">• Firefighter is released from the hospital early afternoon.

Lessons Learned

Chainsaw Operations

The injury was a direct result of the tip of the chainsaw bar meeting the butt end of a felled tree adjacent to the stump, causing the kickback reaction.

- The importance of clearing or swamping out your work area, which is considered paramount to chainsaw operator safety.
- It is important to always visualize the kickback arc (path) and the placement of your extremities in relation to this path.
- Low stumping can be a repetitive process and has potential for sawyers to become complacent and the work to become routine without due diligence to a hazard analysis.
- Chainsaw operators should complete a thorough hazard analysis and implementation of proper techniques throughout all operations, no matter the perceived complexity of the situation or routineness.
- A risk analysis, looking at the need of the work vs. the risk, should occur in all chainsaw operations prior to the work beginning. If low stumping, in this case, is not directly necessary to meet the objectives, than it should not be done as it adds unnecessary risk to the operation.

Personal Protective Equipment

The injured firefighter was wearing all required Personal Protective Equipment (PPE), including 10" tall leather boots and 32" chainsaw chaps that meet Forest Service 6140-4 Chainsaw Chaps Specifications. The chaps overlapped the top of the boots by at least 2".

- The leg straps of the chaps were adjusted loosely, which is a common field practice to allow for less restricted movement and improved ventilation. The NWCG S212 Wildland Power Saw course states in part, "...chaps need to be properly adjusted and worn snug to keep them

positioned correctly on the legs". Based on interviews and FLA experimentation with chaps, it was inconclusive that this would have prevented the firefighters resulting injury.

- Sawyers need to be aware of how chaps move and rotate on the leg as they move and change body positions. Body movement can result in increased exposure areas of the leg that would otherwise be protected under normal conditions.
- Even though PPE is designed to prevent injury, it does not guarantee the total prevention of an injury.

Medical Response

Though this was a severe injury and the firefighter will have a lengthy recovery, the medical response was handled quickly and professionally.

- Discussions were held with incident overhead, related to the medical plan and emergency medical contingencies, prior to beginning work for the day, which helped in a timely response. Thorough evaluations of medical plans should be undertaken by all resources on an incident to identify possible shortcomings prior to engaging in operations.
- Crew familiarity with the medical procedures, and assigned roles and responsibilities resulted in positive actions.
- The crews' medical training and previously running of scenarios gave them great familiarity with medical procedures, protocols, and medical equipment, which led to an aggressive, decisive and proper medical response, expediting care and transportation of the injured firefighter.
- Providing assistance to injured employees from the local unit for medical incidents helps to expedite the administrative process, is of great benefit to the injured and all involved, and should be considered a common practice and standard for all.
- All interviewed EMTs expressed concerns about the lack of clear minimum requirements of medical supplies to be carried by EMTs on the fire line. The FLA Team notes that 29 CFR 1910.266, Appendix A, outlines mandatory equipment for first aid kits for logging, however, injuries not from logging can occur on a fire line. That said both EMTs had sufficient medical supplies to handle this injury.
- This FLA team also noted during this review a lack of medical guidelines from NWCG pertaining to the medical supplies carried by EMTs. Most current NWCG standards focus on training and medical position classifications. Fire crews are concerned that line EMTs will not have enough medical supplies to handle certain situations. Therefore, the FLA Team strongly recommends that this concern be addressed nationally.

FLA Team

Marc Moore, Black Hills National Forest Safety Officer, Team Lead

Travis Braten, Shoshone National Forest, Chainsaw Program Coordinator, Subject Specialist

Carl Jungck, Shoshone National Forest, Collateral Duty District Risk Manager, Team Member

Todd Legler, Shoshone National Forest, Acting Forest Risk Manager, Team Member

Lost Lake Chainsaw Incident
Shoshone National Forest, August 2013

Vicinity Map

