

Rapid Lesson Sharing

Event Type: Chainsaw Cut

Date: July 10, 2019

Location: Fuels Reduction Project
Near Hill City, South Dakota

Firefighter A sustained a large laceration (approximately one to two inches deep) on the outside of his knee and multiple other gashes as the chainsaw bar skipped down his leg.

Narrative

Other than the weather, which had been atypically humid for South Dakota, Wednesday July 10 started out like any other day at the fuels reduction project located off Old Hill City Road. The Type 2 Initial Attack Hand Crew was progressing well.

This hand crew spends most of its time on fuels reduction projects with fire as a collateral duty. The goal for this current project was to get the unit thinned and wood stacked for post and pole recovery.

The terrain on the unit was moderately steep with large granite rock outcrops scattered throughout. The overstory was primarily ponderosa pine. The understory was grass and pine needle litter. Footing was decent, but, at times, the pine litter did cause slipping.

Even though this was a typical project, multiple crew members talked about it being cursed. In fact, Firefighter A had said, *"I also have a feeling that the project is a little cursed, so many close calls on that thing already."* One of these close calls included nearly being hit by a top breaking out of a tree as the sawyer cut.

The Dead Snag was Located Less Than Two Feet Away From the Shed

At approximately 0945, Sawyer 1, who has several years of saw experience, was sent to cut down a dead snag by a shed on the unit. The snag was approximately 8 inches in diameter at breast height and 12 feet tall. It was located on the uphill side of the shed (the shed was cut into the hillside) and was less than two feet away from the shed's roof and side. The slope of the cutting area was approximately 15-20 percent and there was a small amount of pine needle litter and grass on the ground. Due to the snag leaning away from the shed and the cramped

The dead ponderosa pine snag was located less than two feet away from the shed.



Firefighter A was losing a large amount of blood from this chainsaw cut. Fortunately, another crew member had a tourniquet in his personal line gear. This tool was critical for stopping the firefighter's blood loss.





This recreation of this chainsaw cut incident illustrates how the injury occurred.

area, it was decided to do the back cut on the side facing the shed. This limited the space for the sawyer's egress.

Sawyer 1 started to size-up the tree when Firefighter A—a trusted mentor for Sawyer 1—hollered at him and made a pushing motion. Sawyer 1 thought this meant he could push the tree over due to its size and state of decay. As Sawyer 1 was trying to push on it, Firefighter A hollered again and told him to cut it down.

Chainsaw Tip Catches the Outside of Firefighter A's Knee

Sawyer 1 then started to cut the snag down. His face cut went in without any

issues. He was also able to complete his back cut satisfactorily. Sawyer 1 went to remove his saw from the back. At that same moment, Firefighter A stepped forward to push the tree over as he believed it didn't have enough weight to go on its own.

Firefighter A estimates he lost a liter of blood in two minutes. The pressure he applied to his leg above his knee only slowed the process.

Sawyer 1 felt his saw bar catch. Fearing the tree would fall on his bar, he jerked the bar out of the back cut. This caused the chainsaw tip to catch the outside of Firefighter A's knee, causing the saw to buck against Sawyer 1. Firefighter A sustained a large laceration (approximately one to two inches deep) on the outside of his knee and multiple other gashes as the chainsaw bar skipped down his leg. These gashes were more superficial in nature than the main laceration.

Sawyer 1 immediately shut off his saw. Firefighter A shouted for him to get the 10-man medical kit from their trucks which were 50 yards away. Because Firefighter A is the only Emergency Medical Technician (EMT) on the hand crew, he instinctively took control of the scene. At this moment he also noticed that he was losing a large amount of blood. Firefighter A estimates he lost a liter of blood in two minutes. The pressure he applied to his leg above his knee only slowed the process.

Post Injury Activities Include Applying a Tourniquet

During this time, Firefighter B (who is medically trained through the Army National Guard) heard yelling and saw Firefighter A holding his leg with his pant leg soaked in blood. Firefighter B remembered that he had a personal tourniquet in his line gear and ran to the truck and grabbed it. At 1000, two minutes after the incident happened, the tourniquet was applied and gauze and triangle bandages were applied to the wound.

Meanwhile, the other crew members: called 911 despite spotty radio and cell service, appointed a scribe for documentation, and assigned crew members to flag down the ambulance. They also assisted in getting Firefighter A down to the crew truck to await the ambulance and decide how they would transport (via crew truck or ambulance).

They ultimately left it up to Firefighter A to decide as he was the only EMT and they waited for the ambulance—which arrived 14 minutes later.

Firefighter A was transported to the hospital where he underwent surgery to clean and close the wound and was kept overnight for observation. He is expected to make a full recovery without lasting issues.

Successes

Responding Appropriately to a Rapidly Developing Situation

The response was successful given the number of factors that could have gone wrong. The crew members responded appropriately to the rapidly developing situation instinctually and with little hesitation. Continued empowerment of every firefighter, no matter their experience level, to take calm action in the time of an incident will result in more successes in the time of need.

Having Qualified and Trained Medical Responders

Having qualified and trained medical responders was critical. Two crew members had been trained outside of the agency by a volunteer fire department and the Army National Guard. This training allowed them the knowledge and confidence to stabilize the patient while keeping the scene calm. It is imperative that we encourage more firefighters to become EMTs or provide basic first aid training.

The Use of a Tourniquet

The use of a tourniquet was an important tool for this incident. Not having this tool available could have resulted in a far different outcome. The crew EMT and other personnel should be commended for having a tourniquet and knowing how to properly use one. It is advised that firefighters carry and know how to use a tourniquet, especially around chainsaw operations.

Lessons

Proper PPE

Firefighter A was acting as a stacker before this medical incident and thus was not required to wear chaps. Once he entered the saw area, he should have been wearing the proper PPE. Though chaps may not have protected him due to his size and stature, proper PPE should always be worn no matter how small the task.

Maintaining Mental Resiliency

The slow fire season has resulted in increased time on fuels projects which has increased the repetition of duties. This may have led to mental fatigue and complacency. How many times have we heard *“I have done this task a million times before and nothing happened”*? It is important to maintain mental resiliency, especially when everyday tasks become mundane and boring.

Use the Chain Brake

All sawyers **MUST** get comfortable using the chain brake in any situation. Sawyers are taught to let the chain wind down before they set the chain brake so they don't throw out a tensioner or do worse damage to the equipment. In this case, the chain brake was not used. The outcome may have been different had it been used.

Don't Assume Your Saw Partner is on the Same Page as You Are

As we grow to trust our fellow firefighters, we must remember not to assume or get too comfortable with them. Don't assume that your saw partner is on the same page. Verbalize it so you **KNOW** you both are on the same page. This doesn't need to be an extended conversation, rather an informal briefing on if A_B_C happens then do X_Y_Z.

Medical Incident Report Wasn't Used

The Medical Incident Report (MIR/9 Line) was not used nor was an incident within an incident commander identified. Though it didn't make or break this situation, it can be vital in others. A calm, cool, and collected response to incidents of this nature will only improve with the familiarity of processes and procedures that comes with training, even if it is a small-scale briefing, also known as a tailgate session.

We commend that the permanent staff knows the medical plan, but it is highly suggested that a medical plan with pertinent information including the closest hospital, ambulance, etc. be placed in every vehicle and openly discussed at briefings. This ensures everyone, permanent and seasonal, has access to it.

Ensure You Have Communication Contingency Plans

Make sure there are contingency plans for communications. On this project cell service was very spotty and non-existent with some carriers. Radio reception was also spotty. Thankfully, the project leader was able to find a spot with cell service to call 911. But the timeline could have been delayed significantly if he hadn't been successful.

Ensure You Have a Post-Incident Reporting/Notification Process

As an agency we need to clarify and disseminate the official reporting process. After this incident, there were lengthy discussions on who should be notified, when, how, in what order, and by whom. Clarifying this process for ALL employees, while keeping it flexible, is important so time isn't wasted on making those decisions. As always, patient care will be the number one priority, with notifications coming when possible.

This RLS was submitted by: State Training Officer

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