

Rapid Lesson Sharing

Event Type: Snag Strike During RX Operations

Date: January 24, 2018

Location: Kisatchie National Forest, Louisiana

“We talk about this stuff all the time. But until it happens to you, you don’t realize how fast things happen.”

Squad Leader

Incident Summary

On January 24, 2018, the Kisatchie National Forest conducted an 883-acre prescribed fire. During baseline firing operations, a snag burned through at the base. This snag fell and struck a Squad Leader on the back and left shoulder, driving the Squad Leader into the ground.

The Assistant Squad Leader and the Job Corps students assigned to this Job Corps Module witnessed this incident.

The Squad Leader was transported via ambulance to a local hospital for evaluation and treatment. He was released five hours later with bruising to his back and left arm.

The Squad Leader was placed on light duty for two days after which he returned to full duty.

The Kisatchie National Forest’s leadership called for a Rapid Lesson Sharing (RLS) review to be conducted on this incident.

Narrative

On January 22, 2018, a Job Corps Module is assigned to the Kisatchie National Forest to assist the forest with its prescribed fire program. The module receives an in-briefing that afternoon that covers safety concerns associated with prescribed fire and control line prep work. (“Prep work” refers to the number of tasks needed to prepare a burn unit for ignitions.)

The briefing also includes: communications, command structure, contact information and emergency protocols. The next morning, the module reports to a district work center. They conduct a hand-ignition prescribed fire that day on 300 acres.

Weather Looks Favorable for Their 883-Acre Prescribed Fire

The morning of January 24, the weather is looking favorable to conduct a prescribed fire on the district to which the module is assigned. By 0800 hours, the district fire staff members are working on getting everything in place to conduct this 883-acre prescribed fire in “Compartments 18 and 24” inside the burn unit. This prescribed fire will be ignited using aerial resources.

Job Corps Modules

Job Corps Modules are an eight-person module consisting of four “students” from a Job Corps program and four U.S. Forest Service employees.

These modules are assigned to national forests across the Southern Region to assist with prescribed burning operations and preparation activities.

The Forest Service employees have one-on-one supervision of the students, providing mentoring and hands-on job skill training. The future intent is that these students will have the knowledge, skills, and abilities to compete for positions within the Forest Service and/or other natural resource management agencies.

They notify the Forest Dispatch Center, line officers, and Forest Fire Staff at the Supervisor's Office. The district staff also has the local fire crew getting equipment ready for the day's burn. The Job Corps Module assists the local fire crew with equipment and then heads to the burn unit.

All resources assigned to the burn arrive on site. A briefing is conducted that covers: safety concerns and mitigations, assigned tactical (TAC) and command radio frequencies, and various assignments. Procedures for an Incident within an Incident event are also discussed.

Test Fire Successful

The Burn Boss conducts radio checks with the Dispatch Center, trying several repeaters. He is also able to determine that transmissions on the district repeater are "scratchy but readable". He is "not able to key up" any of the other forest repeaters.

After the briefing and radio checks, at 0954 hours a test fire is started and determined to be successful. This information is relayed to Dispatch. Dispatch is also informed that they are going to continue with the prescribed fire.

Job Corps Module Split into Two Squads

The Job Corps Module is split into two squads and are assigned to conduct baseline firing operations on separate areas of the burn unit. ("Baseline" refers to firing and holding operations on downwind portions of the burn unit to strengthen control lines.) Each squad has two Forest Service employees and two Job Corps students. The two Forest Service employees are qualified at the Single Resource Boss level and are performing the task of Squad Leader and Assistant Squad Leader, positions below their highest qualifications.

One squad is assigned to baseline from Drop Point (DP) Romeo to DP Sierra. Their second assignment is to baseline from DP Romeo to DP November. They are assigned a Utility-All Terrain Vehicle (UTV) with a water tank and pump unit. The Assistant Squad Leader, UTV qualified, operates the UTV, while the Squad Leader supervises/trains the two Job Corps students.

They complete their first assignment and move to DP Mike. At DP Mike they park their truck and start down the dozer line from DP Mike toward DP November, scouting the line and developing a plan for ignitions.

He turns to see a snag falling in their direction, yells "SNAG!!" and jumps out of the path of a falling snag—that barely misses him.

Job Corps Student Hears a Loud 'CRACK'

The Assistant Squad Leader drives the line to the creek bottom at DP November as the Squad Leader and the Job Corps student walk the line behind the UTV. A local district firefighter, a fully qualified First Responder, driving another UTV following behind the squad, stops at DP Mike and stages as a holding resource. (From this point forward in this RLS, this local district firefighter will be referred to as "First Responder.")

Halfway between DP November and DP Mike, the Squad Leader calls the Asst. Squad Leader on the TAC channel to discuss their ignition plan. The Squad Leader is looking down slope in the direction of the Asst. Squad Leader with his back toward the backing fire that had been fired by the Dozer Operator who was assisting the squad. The two Job Corps students are standing behind the Squad Leader, positioned between him and the backing fire in the middle of the dozer line.

As the Squad Leader is listening to feedback from the Asst. Squad Leader over the radio, one of the Job Corps Students hears a loud "CRACK" from behind them. He turns to see a snag falling in their direction, yells "SNAG!!" and jumps out of the path of a falling snag—that barely misses him.

***“All I could do was brace for the hit.
There was no time to get
out of the way.”***

Squad Leader

Squad Leader Hit By Snag

Hearing the student yelling, the Squad Leader turns to see from what direction this eight-inch diameter snag is falling—to realize that the snag is falling directly at him.

The Squad Leader is able to turn just enough to avoid a direct hit. The snag hits him on the back and left shoulder—breaking in half upon impact—and drives him to the ground.

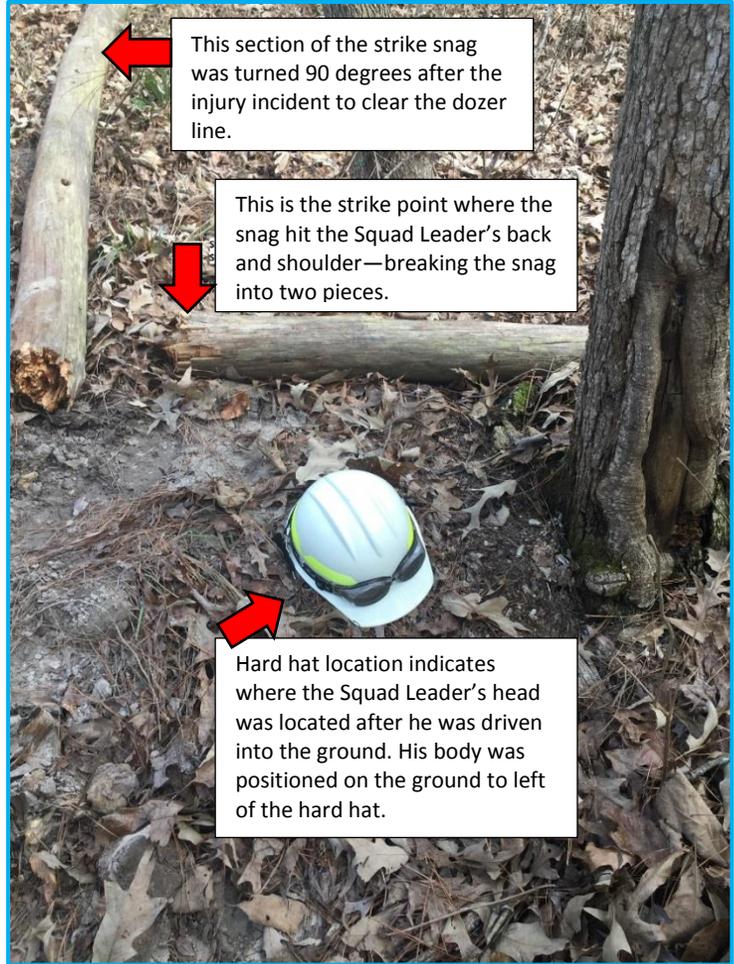
The Squad Leader will later inform: *“All I could do was brace for the hit. There was no time to get out of the way.”*

As the snag came to rest on top of the Squad Leader, the Job Corps student runs down the hill toward the Asst. Squad Leader to get help.

The student will later inform: *“I have never seen anything like that before. I didn’t know what to do except run and get help.”*

Assistant Squad Leader Becomes Incident Within an Incident Commander

The Asst. Squad Leader, in a position to witness the snag strike the Squad Leader, instantly clears the TAC channel for emergency medical traffic and starts running up the hill toward the Squad Leader—who was approximately 400 feet away.



***“A snag fell and hit someone.
I need an Ambulance at DP Mike. NOW!”***

Assistant Squad Leader

At 11:42, as he is running up the hill, the Asst. Squad Leader calls the Burn Boss on TAC and reports: *“A snag fell and hit someone. I need an Ambulance at DP Mike. NOW!”*

The Burn Boss replies that he copied the transmission and assigns the Asst. Squad Leader to be the Incident within an Incident Commander. Feeling urgency in the situation and the need to move quickly to the Squad Leader, the Asst. Squad Leader leaves his line gear on the UTV.

The local firefighter (First Responder) who was driving the other UTV is a fully qualified Louisiana State First Responder and has a fully equipped medical/trauma bag with him. He hears the medical emergency transmission on TAC, grabs his medical bag, and runs down the dozer line about 200 feet to the Squad Leader.

Patient Assessment and Treatment

The First Responder arrives at the Squad Leader's location and starts a patient assessment and treatment. The Squad Leader is able to answer all of the First Responders questions—showing he does not have an altered level of consciousness or mental status.

After a full patient assessment, the First Responder and Asst. Squad Leader both feel comfortable letting the Squad Leader stand up. As the Squad Leader stands up, the Asst. Squad Leader is confused but at the same time extremely relieved. Initially, he had truly believed that the Squad Leader was critically injured.

Ambulance Requested

Upon hearing the emergency traffic and request for an ambulance on TAC, the Burn Boss attempts to call the Forest Dispatch on the repeater. After a few attempts, he gets a scratchy reply from Forest Dispatch.

The Burn Boss notifies Forest Dispatch of the medical emergency and request for an ambulance. He informs that he will be relaying 9 Line information as soon as he has it.

As the Forest Dispatch Center Manager is on the radio with the Burn Boss, the Forest Fire Management Officer (FFMO) walks into the Dispatch Center and hears: *"Is the patient conscious?"*

The FFMO listens to the radio conversation and gathers as much information as he can. He then calls the Forest Fire/Land and Minerals Operations Staff Officer, who notifies the Forest Supervisor of the ongoing medical incident and says he will call back with additional information as it becomes available.

Forest Dispatch Calls 911 Center

At 11:48 hours, the Forest Dispatch Center Manager calls the 911 center responsible for the burn unit's location and orders an ambulance to respond to the burn unit for a firefighter who has been struck by a snag.

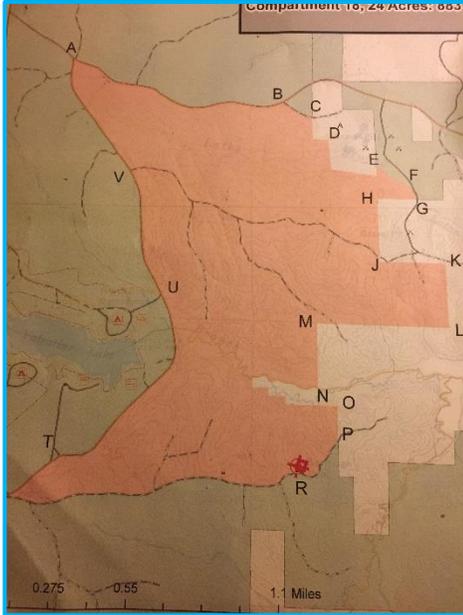
The 911 center requests a physical street address to send the ambulance toward. However, there is no "street address" for the burn unit. After a few minutes of talking to the 911 center, the Forest Dispatch Center Manager is able to relay a Lat/Long for the burn unit. The 911 Dispatch enters this into their computer system and comes up with an address that is close to the burn unit.

Knowing an ambulance is in route, the Forest Dispatch Center Manager tells the 911 Dispatcher that he will call back with updates as soon as he receives them.

Asst. Squad Leader Prepares to Perform the 9 Line

At the incident injury site, the Asst. Squad Leader had arrived just after the First Responder. Knowing he needs to transmit a "9 Line" to the Burn Boss, the Asst. Squad Leader realized that he had left his Incident Response Pocket Guide (IRPG) in his line gear back at the UTV. He therefore turns to the Job Corps students and asks for their IRPG, knowing they each would have one. He receives an IRPG from one of the students and gathers information and prepares to perform the 9 Line.





Map of burn unit showing drop points.

Burn Boss Goes to Preplanned Repeater and Cell Coverage Location

The burn unit is known for being in a location of questionable radio communication and very limited cell service. During the burn unit’s planning phase the Burn Boss had identified locations on the burn unit where there was good repeater coverage and cell service to make a call.

He was able to find two locations. DP Romeo had good repeater coverage and one bar of cell service, just enough to send a text. DP Alpha had good repeater coverage and three bars of cell service, enough to make reliable phone calls.

“It has been a while, a few months, since I last looked at the 9 Line. I was nervous. I knew I had to get it right!”

Burn Boss

The Burn Boss had just left DP Sierra and was traveling toward DP Tango when he is first notified of the medical incident over TAC. The Burn Boss knew he needed to get to DP Alpha—located two miles to the north—to have good repeater and cell phone coverage. He starts to drive more quickly to get there ASAP.

As the Burn Boss is arriving at DP Alpha, the Asst. Squad Leader calls him on TAC with the “Priority Yellow” 9 Line.

Gathering the information for the 9 Line, the Burn Boss thinks: *“It has been a while, a few months, since I last looked at the 9 Line. I was nervous. I knew I had to get it right!”*

Transportation Plan

While the Asst. Squad Leader is reading the 9 Line to the Burn Boss, the First Responder completes his patient assessment. He discovers that the Squad Leader is complaining of pain in his lower back and slight numbness to his left leg.

It is decided that it is best to transport the Squad Leader in the UTV up the dozer line to DP Mike, then continue up the road to meet the ambulance at DP Victor. This will keep the ambulance from having to drive down the rough Forest Service road, through the middle of the burn, and will speed-up the transport time to the hospital.

The transportation plan is relayed to the Burn Boss during the 9 Line. The injured Squad Leader then gets into the UTV under his own power and the First Responder drives him toward DP Victor.

Ambulance to be there in 15 Minutes

Now, with the information relayed by the Asst. Squad Leader, the Burn Boss calls the Forest Dispatch Center on the forest repeater system and transmits a full 9 Line, including their transportation plan and the location for the ambulance to meet the Squad Leader.

Medical Incident Report

Use items one through nine to communicate situation to communications/dispatch.

- CONTACT COMMUNICATIONS/DISPATCH**
Ex: “Communications, Div. Alpha. Stand-by for Priority Medical Incident Report.” (If life threatening request designated frequency be cleared for emergency traffic.)
- INCIDENT STATUS: Provide incident summary and command structure**

Nature of Injury/Illness:	Describe the injury (Ex: Broken leg with bleeding)		
Incident Name:	Geographic Name + “Medical” (Ex: Trout Meadow Medical)		
Incident Commander:	Name of IC		
Patient Care:	Name of Care Provider (Ex: EMT Smith)		

- INITIAL PATIENT ASSESSMENT: Complete this section for each patient. This is only a brief, initial assessment. Provide additional patient info after completing this 9 Line Report. See page 100 for detailed Patient Assessment.**

Number of Patients:	Male/Female	Age:	Weight:
Conscious?	<input type="checkbox"/> YES	<input type="checkbox"/> NO = MEDEVAC!	
Breathing?	<input type="checkbox"/> YES	<input type="checkbox"/> NO = MEDEVAC!	
Mechanism of Injury: What caused the injury?			
Lat./Long. (Datum WGS84) Ex: N 40° 42.45' x W 123° 03.24'			

- SEVERITY OF EMERGENCY, TRANSPORT PRIORITY**

SEVERITY	TRANSPORT PRIORITY
<input type="checkbox"/> URGENT-RED Life threatening injury or illness. Ex: Unconscious, difficulty breathing, bleeding severely, 2 ^o -3 ^o burns more than 4 palm sizes, heat stroke, disoriented.	Ambulance or MEDEVAC helicopter. Evacuation need is IMMEDIATE.
<input type="checkbox"/> PRIORITY-YELLOW Serious injury or illness. Ex: Significant trauma, not able to walk, 2 ^o -3 ^o burns not more than 1-2 palm sizes	Ambulance or consider air transport if at remote location. Evacuation may be DELAYED.
<input type="checkbox"/> ROUTINE-GREEN Not a life threatening injury or illness. Ex: Sprains, strains, minor heat-related illness	Non-Emergency. Evacuation considered Routine of Convenience.

108

This is the 9 Line located on pages 108-109 in your IRPG. To learn more, click on this link:

[Medical Incident Reporting Lessons](#)

The Forest Dispatch informs the Burn Boss that the ambulance is already headed that way and had an estimated time of arrival (ETA) of 15 minutes. The Burn Boss was also notified that the FFMO had made contact with the Albuquerque Service Center (ASC) and was in need of the Squad Leader's name and what hospital he was being taken to.

Next, the Burn Boss sends a text message to the Forest Dispatch with the Squad Leader's name and the Forest Dispatch calls the 911 center's non-emergency phone line to get the receiving hospital information.

Patient Arrives at Hospital

At approximately 1200 hours, the ambulance arrives at DP Victor and the First Responder starts to transfer patient care of the Squad Leader over to the Paramedics. While this transfer of care runs smoothly, the process takes a few minutes to complete.

Fifteen minutes later, the Squad Leader is being transported to the hospital under the care of Paramedics. In 20 minutes, he arrives at the hospital. After five hours of evaluations, the Squad Leader is released from the hospital. With bruising to his back and left arm, he is placed on light duty.

Two days after being released from the hospital, the Squad Leader is back to full-duty work.

Lessons

- ✓ Training for emergency situation needs to be tailored to the newest member of the organization. We need to train our first-time firefighters to know what to do if the supervisor is the one who is injured. These first-time firefighters need to know how to operate/communicate on a radio, how to communicate the 9 Line, and how to read maps to communicate their location and needs during an emergency. This training should also include how to package and carry out an injured person on a backboard.
- ✓ Keep your IRPG in your pocket *not* in your line gear. This way you always have the 9 Line with you when you leave your gear behind.
- ✓ The Albuquerque Service Center (ASC) needs the name of the injured employee, address, and fax number for the hospital *before* issuing a case number for treatment. What if the patient is from an agency outside the U.S. Forest Service, an agency that does not use ASC? What is the process to get authorization of medical treatment for those employees?
- ✓ When ordering an ambulance from the local 911 center, they request a physical street address to send the ambulance toward. There is no address for the burn unit. Providing driving directions for the 911 Dispatcher created a slight delay in the dispatching of the ambulance.
- ✓ Give as much information to Forest Dispatch in the Pre-burn Dispatch Notification as possible. For example: the location of the closest emergency medical services, driving directions, Lat/Long, a street address if available, and possible landing zones for medical transport helicopters.
- ✓ District fire staff have discussed "holes" in the communications coverage and the mitigations used in the field during past fire program meetings. It was quickly learned by all personnel involved in this RLS learning review that the extent of these "holes" in coverage and mitigations that were established in the past are no longer valid. Field resources are having to mitigate the mitigations, creating larger holes in the system.

“We make an effort to mitigate all the hazards, but it’s impossible to mitigate every snag out there. With a program of this size, there are thousands of snags out there. Keeping awareness up is our last line of defense.”

Forest FMO

- ✓ With recent tornadoes, hurricanes, ice storms, and drought and insect infestations, the Southern Area has a higher than normal snag count. Even though control lines are prepped and snags are felled, pushed over with a dozer or lined, some snags are missed during these prep operations.

Concerns about the Local Unit’s Communications System

On January 24 when this medical response incident happened, the burn unit was known to be in an area of highly questionable radio coverage. The mitigation to this questionable communications status was to identify locations on the burn where radio coverage was good and to identify locations where cell service was available.

While conducting a facilitated group dialog session as part of this RLS review, concerns about the local unit’s communication system were discussed.

During this discussion, it became apparent that there are several areas on the local unit that have similar questionable communication issues. Using cell phones has been the mitigation to these existing communication concerns.

It was further determined that these questionable communications areas have been getting worse. New mitigations were being put into place to mitigate the previous mitigations that are no longer valid.

Has the local unit adopted so many mitigations and work-arounds that they are now part of “normal operations”?

When mitigations are no longer valid, is the local unit putting in more mitigation on top of mitigations—rather than working to fix these issues?

What Set Them Up for Success?

Information Sharing

From the time when this injury was first reported to when the injured Squad Leader arrived at the hospital was 50 minutes. This quick response, transport, and treatment time can be partly contributed to the level of information given to the Forest Dispatch Center by the district fire staff about the burn unit during the planning phase, as well as during the burn day’s pre-ignition notification process.

Without the high level of information provided, the Forest Dispatch Center would not have been as well prepared as they were for this emergency.

What information are you giving to your Dispatch Center prior to a planned field activity with elevated risk?

Notifications, Paperwork, OWCP Claim Number

As this medical emergency was being called into the Forest Dispatch, the FFMO happened to be walking into the Dispatch Center office. Overhearing the transmission, the FFMO knew there were several steps to be taken to ensure that the Squad Leader was properly cared for.

The first step the FFMO performed was to make sure that the proper notifications were made up the chain-of-command to the Regional Office. He also called the Albuquerque Service Center (ASC) to get an Office of Workers' Compensation Programs (OWCP) claim number for billing purposes.

This claim number was given to the assigned Forest Hospital Liaison, who was able to ensure that the number was provided to the hospital that was providing care to the injured firefighter. The Forest Safety Officer was also quickly notified. He was able to enter the preliminary information into E-Safety and start the CA-1 process.

Therefore, the CA-1 was started and the OWCP claim number generated before the injured Squad Leader even arrived at the hospital.

The Forest Safety Officer was also able to log onto the Occupational Safety and Health Administration (OSHA) website to fill-out the appropriate notification form and submit it prior to the regulated notification time limits.

Even though these processes are informal on the Kisatchie National Forest, staff members recognized the processes needed to be completed and stepped forward to ensure that they were completed correctly and in a timely manner to provide the best care for the Squad Leader. This prompt response prevented the Squad Leader from worrying that he might be personally billed for his emergency care and treatment.

Does your unit have a formal or informal process in place to ensure that these tasks are completed?

Does your unit have a Hospital Liaison Program?

What if your patient is from an agency outside the Forest Service? An agency that does not use ASC. What is the process to get authorization of medical treatment for this employee?



First Responder Program

Three years prior to this incident, the Kisatchie National Forest recognized a need to have employees state qualified at the First Responder level.

The program gained full support from the Supervisor's Office. An employee of the Supervisor's Office, who is also a fully-qualified State Emergency Medical Technician and on the roster for one of the Region 8 Incident Management Teams as Medical Unit Leader, took the lead of this First Responder program.

When employees were asked if they would like to participate in the program, several employees from all forest programs volunteered.

During the past three years the Kisatchie National Forest has held three classes that has qualified 15 of its employees as First Responders. As these employees become certified, the forest provides them with a fully-equipped medical/trauma bag. This bag is equipped with bleeding control, tourniquet, oxygen and masks, airway control, C-collars, splints, pack-out bags, and other assorted medical supplies.

Read other "Learning Review" reports to learn how Hospital Liaison Programs helped during emergency incidents:

[Jade Creek Fire Tree Strike 2017](#)

[Pioneer Fire Fuel Geyser Burn Injury](#)

[Short Fire Medical Emergency](#)

During this snag strike incident, a local firefighter who had become certified under this program was on the control line with his medical equipment. He was with the Squad Leader within a minute of the injury providing medical care.

Is Basic First Aid/CPR the appropriate level of training for the level of risk we operate under?

What is your local unit's medical response program/plan?

This RLS was submitted by:

**Dale Snyder,
with support from the employees and staff of the
Kisatchie National Forest**

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