

Rapid Lesson Sharing – Leg burn on Langdale RX

“How can we prevent this from happening and reduce the impacts if it does?”

Location: Near Valdosta, GA

Host: National Interagency Prescribed Fire Training Center

Cooperating Agency: Georgia Forestry Commission

Date of incident: 2/16/15 at 1330

Complexity Level: Moderate

Fuels: See photo:



Mature loblolly pine over-story with a grass, green briar and oak brush under-story. Lighter/shorter fuels on the north end (grasses, brush less than waist high), south end: 10-20' tall in dense large patches

What happened:

Fire fighters carrying drip torches were igniting a unit using a dot firing technique in order to create a flanking fire, and one of them became entangled in green briar vines. While attempting to untangle, the fire fighter's Nomex pants caught on fire. The result was a 5" x 6" burn on the back of the fire fighter's left calf.

While this is not a new concern for firefighters, it continues to cause issues.

The burn crew involved in this situation decided to look at things that should be shared and considered by those working in dense brush and briars, and things to take into account if your pants catch on fire - regardless of what fuel model you might be working in.

Torch caught in briars and brush?

- Consciously stop and extinguish your torch, then work your way through the brush. This will allow you time to free yourself from the brush without bringing fire close to you which could potentially cause hurried scrambling through dense fuel.
- Don't jerk on the torch if it becomes entangled – this can cause a pendulum effect of the torch swinging back toward you when it releases, bringing fire with it as it comes!
- If you have been dragging fire along behind you as you were walking and the torch gets caught in the vegetation – turn around and face the torch to get free it.
- Watch for fuel spewing out of the torch if the mix is too hot (too rich with gasoline), or if you have not had the mix running onto the wick for a while, which is common with a dot firing pattern.

Are the fuels thick and is it possible that you might encounter difficulty walking through?

- Consider using equipment such as a mower or dozer to mash down or reduce the fuels in lanes that would facilitate strip firing.
- Communicate the difficulty in the planned ignition operation up the chain of command and determine if the mission is worth the exposure.
- Be aware of the vines and brush that are ahead of you – plan the best route, assess potential trouble spots, and shift to avoid them.
- Alter the spacing of lighters to avoid dense patches and minimize overall trips through the burn unit.
- Wear chainsaw chaps to reduce injury. Brush slides off the chap fabric more easily than that of Nomex pants. The chaps will also protect you if you need to push through briars.
- Use game trails and “play the fuels” to find easiest walking routes (taking into consideration the prescription objectives and overall fire intensity).
- Recognize the potential for risk creep: after a couple of passes through these types of fuels, it becomes “more acceptable” and “not so bad” – recognize that the task may **not** be “just part of it.” Avoid that mentality!
- Consider altering your ignition tactics – rather than send 4 lighters in at the same time, send 1 at a time and communicate when each reaches clear walking or the fire break. This will allow needed flexibility in actual line placement and avoid the potential to get ahead, or behind, the next lighter.
- If you get fuel on your clothing – change them: stop lighting! Trade out with other fire fighters.
- Be aware of your fatigue level and natural fluctuations during the day (sluggish after a poor night sleep, getting into the groove, heavy and slow after lunch or a long day on the torch). Understand that fighting thick brush is very draining - much more so than you may realize. Alternate lighting duties with other crew members.

Your pants are on fire! Now what?

- It's a normal reaction to reach down and swat or pat the fire out. **DON'T!** This adds oxygen to the fire and pushes the heat against your skin. If fuel caused the pants to catch on fire in the first place, the vapors are likely to ignite and cause more fire. If the burn is severe, your blistered skin may stick to your pants and create a big issue. If your pants *do* stick to you – **DO NOT** pull them off, let emergency responders handle that in a sterile setting. If needed, cut the fabric and leave the portion stuck to the wound. Bandage over that to prevent additional contamination to the wound.
- Drop your torch and press your hands together over the fabric – pinch it between your gloved hands to smother it.
- It has been noted in several cases that using your hands doesn't put the fire out. Drop to the ground and use a gloved hand to smother the fire against the ground to avoid or minimize the heat to the skin.

Treatment in the Field:

- Immediately move away from the heat and get to a safe place. Notify your fire line supervisor.
- Apply Water-Jel (either in the form of a prepared burn dressing, or the gel itself covered with a non-stick pad). Cover the area with gauze and keep the wound clean.
- If possible, apply ice to the pulse point between the injury and the burn victim's heart (example: back of the knee to cool the blood flowing to the burned calf).
- Remember national burn protocols and advocate seeing a burn center or specialist to insure proper care is given.
- Note that burns continue to mature for 24-48 hours (potentially more if gasoline is involved) and what looks like a Second Degree/Partial Thickness burn may really be more serious.



Actual site of the leg burn after fire



On site first aid administered in less than 2 minutes.

Resulting burn at the emergency room: 5" x 6" Partial Thickness/Second Degree, surrounded by First Degree burns.



GSA rip-stop Nomex pants worn during the prescribed burn: Note the darker patch of fabric and the heat-affected tan area with a darker charred center.



END