



United States Department of Agriculture
Forest Service

FACILITATED LEARNING ANALYSIS (FLA)

Firefighter Hotfoot




Fighting a fire in the footprint of the tragic 1959 Decker Fire that claimed seven lives was not lost on local firefighters responding to the Falls Fire on August 5, 2013. Fifty-four years almost to the day, firefighters were thinking about the lessons learned from that tragic event. From the outset this complex fire had a lot of moving parts. Firefighters battled fuel conditions identified as the most severe in 60 years on this southern California forest. The first 12 hours of initial attack included shifting into unified command with CAL FIRE; closing a busy California highway, multiple evacuations, all with stretched resources.

After arriving at the fire at 1000, a 12 year fire veteran Fire Engine Operator was assigned responsibility for Division "Z". In the first ninety minutes he dealt with multiple demands including extricating a

firefighter on the line with heat cramps and directing a hose lay during which he ended up soaking his boots and socks. The Division Supervisor was scouting ahead of the line at 1130. After coordinating some aerial retardant drops, the division supervisor moved out of the drop zone into the black to avoid a retardant drop. He walked through several ash pits across a moonscape where vegetation had burned down to the roots.

He later tells us he got "a really bad case of hotfoot which happens all the time but everything else was taking precedence" and he focused on the job at hand working initial attack over the next 12 hours. He was wearing Whites and was double socked, the outer pair hiking wool and inner pair Forest Service uniform boot socks. Around 2300 he hiked three miles back to his engine. Upon arrival he realized his feet were really hurting "worse than ever before" and after he took his boots off the swelling was immediate and his boots could not be put back on. At that point, the Operations Chief and the Incident Commander were notified and the Division Supervisor was driven down to a waiting ambulance and was transported to a nearby trauma center of his choice. He was evaluated and referred to



Steam often causes worse burns than boiling water because as the steam condenses on the skin, it releases the latent heat of vaporization. Thus more heat is transferred to one's skin exacerbating the injury.

a local burn center. The following day the burn center concurred that no further treatment was needed. The Forest provided a liaison to him following him through his brief hospitalization.

While he suffered 2nd degree burns he did not have deep tissue damage. The doctors told him that his wet feet had increased the intensity of the burn because steam, in contrast to dry heat, causes significantly more damage.

Just as lessons learned from the Decker Fire continue to be carried forward by new generations of firefighters, there is room for continual improvement in firefighting to avoid injury, both minor and life threatening. "Hotfoot" is an all too common occurrence in firefighters with effects ranging from mild annoyance to seriously debilitating. The challenge for the firefighter is that the slow onset of symptoms, compression of the boot and adrenaline all work in combination to mask the seriousness of the injury and narrow the window of opportunity for early intervention.



Lessons Learned

- ✓ As much as practical, avoid saturating boots with water.
- ✓ Recognize that when boots are saturated, avoid extreme heat.
- ✓ Thermal/steam burn injuries don't immediately manifest themselves.
- ✓ It's valuable to have a hospital liaison, to assist with patient and family needs.
- ✓ Wearing wet boots while walking through hot ash can contribute to the seriousness of burn injuries.
- ✓ Intense focus can overshadow awareness and treatment of personal injuries.
- ✓ Forest Service uniform socks do not meet the requirements for fireline use.

Most importantly, lessons learned from previous fire history led to a successful outcome with minimal injuries. This firefighter went home at the end of the day.