

Spur Fire FLA

The Stanislaus Forest Supervisor initiated a Facilitated Learning Analysis (FLA) on October 31, 2012. The goal of the FLA is to use this incident as an opportunity to strengthen the agency safety culture and increase awareness by identifying and sharing the lessons learned from this incident with others in the firefighting community. It is the hope that both firefighters and managers will use this report in a learning environment.

This FLA has been made possible by the cooperation and support of the participants. The FLA team would like to express our sincere appreciation to all of the individuals who participated for their willingness and honesty in sharing their story and time.

Summary

On Monday, October 29, 2012 at approximately 1100, a CAL FIRE inmate staffed hand crew responded to a reported vegetation fire in Yosemite National Park near Foresta, CA. Soon after, the fire location is corrected putting it on the Stanislaus National Forest with a private land origin.

The crew arrived on scene at 1105. After discussion with the IC, they anchored to a dirt road, and began constructing direct hand line. During line construction, an inmate firefighter disoriented by the smoke, fell into a stump hole formed from a previous fire. The Fire Crew Captain with the help of another Crewmember dragged the incapacitated firefighter through the flame front into the black. The Captain received a superficial 1st degree burn from radiant heat to the left side of his face during the process of moving the firefighter. Medical personnel evaluated The Captain and firefighter on scene. A California Department of Corrections and Rehabilitation officer transported the firefighter to John C. Fremont Medical Center in Mariposa where he was assessed and released to Sierra Conservation Center. The Captain remained on scene until a relief captain arrived and driven to John C. Fremont Medical Center, for evaluation. The next morning the Captain visited a burn center for evaluation of the radiant heat burn (per agency protocol), and released that afternoon .

What Happened. Firefighters on the Spur Fire experienced a near miss where the outcome could have been deadly, but instead, the rescued and rescuers survive sharing their story with you.

The small fire that started on October 29, 2012 had all the hallmarks of a fire that could be caught easily. Late season burning conditions favored the firefighters' efforts. The Spur fire spread to the footprint of

the 2009 Big Meadow fire and the light fuels of a grassy understory, bear clover and replanted ponderosa pine. The firefighters found mild weather with sunny skies, temperatures in the high 70's to low 80's and relative humidity of 15-18%. Winds blew 2-3 mph from the SE with intermittent gusts up to 7 mph. Crews traversed easy terrain, flat to gently sloping. *What could go wrong?*

The Spur Fire was located in the SE corner of the Stanislaus National Forest bordered on two sides by Yosemite National Park (YNP). Although the Spur Fire occurred on Forest Service (FS) land, YNP resources were first on scene and assumed the IC role. FS, NPS, and CAL FIRE personnel routinely cross boundaries during incidents and CAL FIRE inmate crews are used locally for project work. Years of planning, working, and training together has fostered an atmosphere of trust as evidenced by the fairly seamless operation during the Spur Fire.

On October 29, 2012, at 1157, first report of a fire in Yosemite National Park is heard by a CAL FIRE Inmate Crew who happen to be doing project work nearby. Anticipating they were going to be dispatched, the crew leader tells the crew to "nomex up". Arriving within minutes of being dispatched, the experienced Fire Crew Captain sizes up the situation and plans on going direct. This didn't appear to be a complex fire especially to a Captain who had been doing this for 28 years. The fire has now bumped a dirt road which he judges can serve as an anchor point from which hand line can be constructed to cut the head of the fire off. He plans for the crew to scratch a line and then come back and widen it after hooking the fire. A fairly common tactic on a seemingly routine fire.

Before starting line construction, the Yosemite National Park IC arrives at the same time as the crew and meets the Captain on the road. They briefly discuss tactics with the Captain laying out his proposed plan. They agree. The CAL FIRE crew begins line construction and the IC moves down the road to the point of origin to continue his size up. *What could go wrong?*

The Captain is the relief for this CAL FIRE Crews' vacationing Captain. This Captain had worked with this crew the week prior. The standard 16 crew configuration is 5 members short. Additionally, this Captain had served as Crew Leader on fires with several members of this crew. Crewmembers ranged in experience between one and four fire seasons.

As the crew is lined out, the Captain's span of control is to maintain custody of the 11 inmates as well as serve as lookout and direct crew operations. Short 5 members, the Captain is constantly evaluating whether the production (building line) is able to keep up with the fire progress and keeps the sawyers within sight as they tend to move faster than he is comfortable. Twenty minutes into the fire, the wind gusts pick up and the fire intensity increases. At this juncture, the Captain is pausing to gather situational awareness to see if the tactics are working. The Captain is reformulating his tactics and feels he might need to re-anchor and move the line further ahead since the fire is advancing faster than their production can support. The Captain is thinking he needs more than one backpack pump given the flare ups and smoke. There is only one back pump in use: Crewmember 1 is being instructed on how to use the wand by Crewmember 2 who is holding the pump. The Captain instructs Crewmember 2 to go back to the crew buggy and get another backpack pump. Crewmember 1, less experienced with this

Crewmember 1's Perspective

Crewmember 1 remembers tripping and falling into the hole. Beyond that, "I blacked out and then woke up inside the black with people standing over him" suggesting that he was by then in the shade. He recalls asking the people standing over him "if I was dead or alive?". He indicates he wasn't sure if he was dreaming.

equipment, is left on his own with the backpack pump where it became "very smokey" making it "difficult to breathe".

Just as the Captain has called his sawyers back, his attention is diverted. Crewmember 1, wearing his hard hat, trips and falls into a large stump hole from a previous fire.

Through the Captain's eyes, events unfold as he goes to assist Crewmember 1. Crewmember 1 rolled and curled up, with eyes closing like he is going to sleep and the Captain thinks "something isn't right". The Captain tells him "Come on let's go" as the fire is getting close and he grabs Crewmember 1's hands, but Crewmember 1 lets go. The 210 pound fallen firefighter is not budging. Now the Captain is extremely anxious as he realizes "I can't move him" and the advancing fire is within seconds of engulfing both of them. At this point, the Sawyer sees the Captain struggling and runs over to join the Captain in dragging Crewmember 1 into their safety zone, the black, dropping the hard hat as he is moved. The fire has now cut off Crewmember 1 the Captain and Sawyer from those working with tools who are in a safe location between the road and the black. The Captain is

feeling the radiant heat as fire intensity has picked up.

When they moved him, Crewmember 1 opens his eyes and starts screaming twice "I am going to die" or "I almost died" depending on the witness. Sawyer's recollection is that Crewmember 1 doesn't want to go into the black and is trying to pull toward the green and is screaming then goes quiet "like he was going to pass out". Now the Captain considers whether Crewmember 1 is panicking or taking heat and they drag him a few yards further into the cooler black in the shade of some trees. The rest of the crew gathers here. The Captain instructs others to remove his shirt and "keep him awake". Crewmember 1 gets up, according to multiple witnesses and runs in a circle. Crewmembers calm him down and get him to lie back down. The Captain asks him questions to assess his mental state with mixed results.

During this time, the Captain now does a crew head count and accounts for every member. Around 1135, the IC comes on scene and requests an EMT from an Engine that has since arrived on scene. The Captain realizes he is fully disengaged and starts communications for an additional relief Captain and California Department of Corrections and Rehabilitation (CDCR) officer to help transport the inmate. By this time, other resources have arrived and are making strong progress toward containing the fire.

The EMT arrives on the scene at 1141. The EMT's assessment finds no obvious injuries or complaints but notes the patient is distracted, closes his eyes a lot and reports being sleepy. Having recently obtained his EMT certification, he requests an ambulance "to be on the safe side". After a 20 minute assessment, Crewmember 1 is able to walk approximately 200 yards under his own power with inmates there on each side to assist him if needed. Upon reaching the crew buggy, he talks about soreness in his right

knee, a pinch in his neck and some abdominal pain. A second assessment found no visible signs of injury. When the ambulance arrived, Crewmember 1 indicated he could not walk the 10 yards to the ambulance and a gurney was used. Upon evaluation paramedics, release Crewmember 1 to CDCR. Additional CDCR personnel who arrived on scene and decide to transport him to the nearest medical facility.

Lessons Learned

Capacity to Manage the Unexpected

Evolving Initial Attack circumstances often present unexpected events that test our system of safely fighting fire. A “Brutal Audit of the system” is a phrase often used to describe the consequences of those events when the system fails. When the unexpected tests the system and it works - it is still an audit, just less brutal. The Spur Fire FLA team believes the lessons learned from this incident are found in the success of that system especially the firefighter (human) component. This success resulted in a near miss with few injuries rather than a tragedy with severe burns or a fatality.

- **Training and Experience:**

The training and experience level of the Captain supervising the Fire Crew had a significant impact on the events that occurred on the Spur Fire.

***The crew boss is where
the rubber meets the
road in fire line safety.***

- ✓ The Captain has 28 years with CAL FIRE and training to match.
- ✓ His ability to implement the 10/18 and LCES are an example of a firefighters’ ability to successfully implement system safety tools. The tools work well when the firefighter has the training and experience to make them second nature.
- ✓ Covering the basics allows for increased capacity when the unexpected occurs.

The Captain knew “what was up with his crew”. He had to account for a range of physical fitness levels, strengths and weaknesses and where those ranges departed from normal for this crew. In a relief role, The Captain had to gain this knowledge quickly – but his ability to do so increased his capacity to manage the unexpected. The unexpected in this case being an unknown capacity for stress on one key crewmember. The Captain managed the unexpected with decisive action and the support of a well managed crew.

- **Span of Control**

Typical crew structure for a CAL FIRE inmate crew consists of 16 crew members and one Captain. The Captain has to wear many hats during fire suppression assignments: crew boss, lookout, custody officer,

driver with no subordinate leaders or supervisors. On the Spur fire an experienced Captain juggled those roles for a successful outcome.

When the unexpected happens, according to one crew member, "you look to the Captain for what to do". When they heard a shout of "into the black!" they knew exactly what it meant and where to go.

- **Crew Dynamics**

The FLA team witnessed, during the course of the analysis, a high degree of respect directed at the CAL FIRE Captain on the part of his 11 person crew. The crew also demonstrated a high degree of concern for other members, a strong desire to help their Captain when they saw he had his hands full and willingness to improvise and act.

- **Tracking of Small Failures/Sensitivity to Operations**

As events evolved firefighters displayed an innate ability to apply the High Reliability Organization principles of "Tracking Small Failures" and "Sensitivity to Operations".

From the start Captain:

- ✓ Monitored crew line production capacity, knowing the crew was under staffed.
- ✓ Monitored tool effectiveness for the fuel type, taking a few licks with the tool himself.
- ✓ Tracked the gap between the saws and the scrape and was adjusting when the accident happened.
- ✓ Monitored effectiveness of the single backpack pump and of adjusting when the accident happened.
- ✓ During and immediately after the accident the Captain accounted for the whereabouts and safety of the entire crew.
- ✓ The EMT made a strong response to a weak signal. Though he could find no obvious injury to the crewmember and the Captain had not yet shared his burn injury, he ordered an ambulance.

- **Taking Advantage of Shifting Locations of Expertise**

Another High Reliability Organizing principle migrates decision making to experts during high tempo operations. An incident within an incident, especially during initial attack, can distract the IC and expose more risk for firefighters engaged in suppression efforts. The Spur Fire IC allowed the EMT to manage the accident, quickly recognized the complexity of the accident and returned his focus to the larger suppression effort. The EMT, also recognizing the complexity of the incident-within an incident, managed it without depleting other suppression resources.

- **Risk/Benefit Analysis .**

The FLA team observed a fluid, real-time risk-benefit analysis in the decision making process conducted by, primarily the Incident Commander. Common to many initial attack fires, the IC must weigh the benefits of time consuming, extensive size-ups and briefings with quick action that minimizes fire growth and the risk of a larger, more complex incident.

"We train with other firefighters, not agencies. We work with other people, not organizations. We all have similar goals, just different tools to get there."

- **Interagency Relationships**

The FLA team found a high degree of interagency trust associated with the Spur Fire. Years of planning together, working together and training together have led to relationships centered on people

The Team would like to thank the [or the agencies represented below] Stanislaus National Forest, CAL FIRE Madera-Mariposa-Merced Unit; CA Department of

Corrections and Rehabilitation; and Yosemite National Park for their willingness to foster a safety culture. By promoting a lessons learned environment you have paved the way for leading change across our agencies.

Team Members

Joan Friedlander, USFS, R5, Cleveland National Forest, Palomar District Ranger (Team Leader)

Robert Laeng, USFS, R5, Stanislaus National Forest (Facilitator)

Chris Schow, USFS, R5, Stanislaus National Forest (Subject Matter Expert)

Alec Lane, USFS, R5 Stanislaus National Forest (Peer)

Bernie Spielman, USDI NPS, Pacific West Region, , Yosemite National Park (Interagency Representative)

Rich Drozen, State of CA, CAL FIRE, (Interagency Representative)

Gabe Santos, State of CA, CAL FIRE (Interagency Representative)

Glenda Santos, State of CA, CAL FIRE (Interagency Representative)

Jay Codromac, State of CA, CA Dept of Corrections and Rehabilitation (Interagency Representative)

Chris Dean, State of CA, Dept of Corrections and Rehabilitation (Interagency Representative)

Steve Meikle (CDF Firefighters) Union Representative

Barry Rudolph (CDF Firefighters) Union Representative

