Rapid Lesson Sharing – Chetco Bar Fire
Success Story: Egress Compromised

Location: Chetco Bar Fire, Brookings, Oregon
Date of incident: 8/27/17
Complexity Level: Type 1, Unified Command
Fuels: Timber: Douglas fir stands of various age classes, tan oak and canyon live oak, dense brush field of manzanita and ceanothus in older fire scars which contain numerous snags and heavy dead/down. Low live fuel moistures in the brush fuels will allow them to actively burn, reburn potential high.
Weather: Temperatures 85-95, minimum RH 10-18%, NE winds 5-10 gusts to 15, Haines of 6, Probability of Ignition of 90%, spotting distance: 0.3 miles. Red Flag Warning in effect.

The task was straightforward:
Fill a portable tank on a mountainous incident road to support a hose lay helping to hold the line. Prior to sending the tender in to fill the tank, the road needed to be widened to prevent brush and limbs from hitting the tender as it drove. That was accomplished by about 1300, and the tender arrived around 1400 to take the water from the drop point to the portable tank.

Accompanied by a Type 6 engine with three crewmembers and a task force leader, the tender left the drop point. About 1415, radio traffic began to increase about fire activity in a drainage below the road. A handcrew working the line in the drainage reported minimal fire activity which did not account for the increasing column. The taskforce leader split off to try to find a better location to assess the activity while the tender began to unload the water into the tank. The engine crew divided to assist the tender operator and find a place near the tank where they could see the source of the smoke.

"You couldn't see anything from the road but dense trees and brush. You could smell the smoke and see a little wafting in, but no way could you tell where it was coming from."

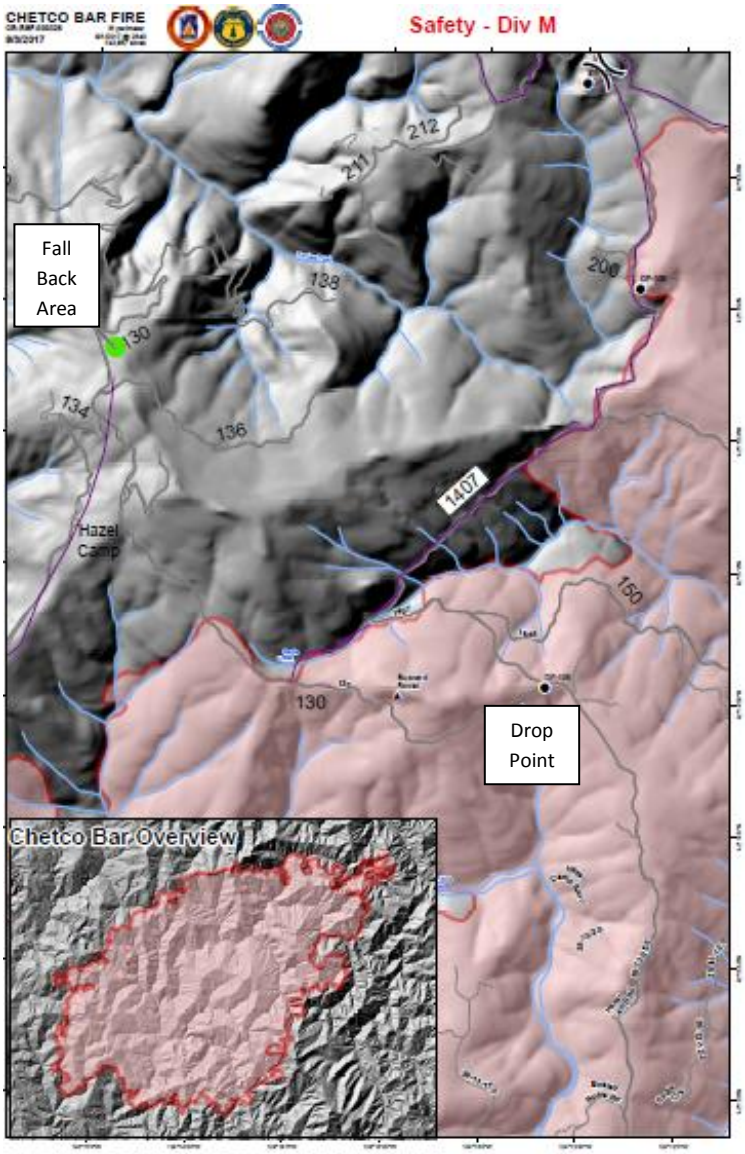
Within 5 minutes it was discovered that several embers had taken hold between the fire column in the drainage and the road. Additionally, more embers had crossed to the opposite side of the road, putting fire on both sides of the access route between the drop point and the portable tank. This was first noticed by the taskforce leader. He called the engine and tender and told them to leave the site immediately. The tender made a decision to quickly reload 500 gallons of water into his truck, a process that took 2-3 minutes.

"I know water puts out fire and if we needed it, I wanted to have it. It doesn't take long to drain a Type 6."

They gathered hoses and jumped in the trucks. The tender led the way because he had a tactical monitor and more water to suppress fire, should it be needed. They quickly realized fire had established on both sides of the road. The tender operator advised the division supervisor that the road was blocked by the fire and they were going to back up to a better location. He shared that he had about

800 gallons of water on board. The engine stayed with the tender and retreated back towards the portable tank to a wider spot in the road. They had 300 gallons on the engine.

"Its moments like this that time seems to either speed up, or slow down, for those involved."



They took inventory:

- They knew from previous shifts and various briefings that fuels were highly volatile, there was a Haines of 6, and that is was early in the burn period.
- They saw the boles of the trees had already caught fire.
- They were aware of the heavy timber along the entire narrow road.
- They worried about the potential for tires, or diesel and gas, catching fire as they drove through.
- They did NOT know how long the compromised segment of road was.
- They had decent communication to firefighters at the drop point on the other end of the burning roadside.

- They had water in their tanks and in the portable tank.
- They had all their equipment and PPE, including fire shelters.

They distinctly recall thinking through several options available to them:

- *"I opened the tender to let some water out on the road, and figured we could wet down the fuels around us to make cool black."*
- *"We wanted a Plan A, Plan B, and Plan C to get out safely. We knew we had at least 30 minutes until air tankers could get there so it was up to us to figure out a second plan."*
- *"We started pulling saws and opening up what we could to get some clearance between us and the fuels. We cut like 20-30 trees, mostly reprod up to 6" diameter and a lots of brush."*
- *"I knew the pilot would never see a mirror flash if she couldn't even see the road bed."*
- *"We tossed around the idea of walking out to a Helispot - it was a long ways and it would have been tough to walk away and leave our equipment."*
- *"We were ready to burn out – I flipped the wicks over on the drip torches so we could, but we kept them away from the heat until we'd need them."*
- *"I wasn't thinking about deploying, I knew it was there if I needed it. I also knew that given the heavy fuels, that wasn't really an option."*

They stepped into action: crewmembers grabbed saws and began to open the canopy and clear brush, set up hoses to protect them. One acted as Lookout to watch their immediate area, and another communicated on the radio with aircraft overhead and division supervisor.

The division supervisor knew that their daily work included monitoring 2 Tactical channels (due to number of cooperators), Command, and Air-To-Ground. He cleared the main Tactical channel of all traffic and contacted air resources overhead about the situation. The division supervisor also divided radio channel monitoring between other individuals standing by at the drop point (Command, both Tactical channels, A-G) so he could focus on listening to his resources communicate their situation.

A lead plane pilot (overhead due to a retardant mission that was cancelled) established contact with the crewmembers. They gave the pilot coordinates to their location. She could not see them through the canopy until 20-30 minutes into the falling operation when a gap was created.

"It was comforting to have her overhead and hear what she was seeing."

A Type 1 Sky Crane dropped a load of water to cool the fire along the road.

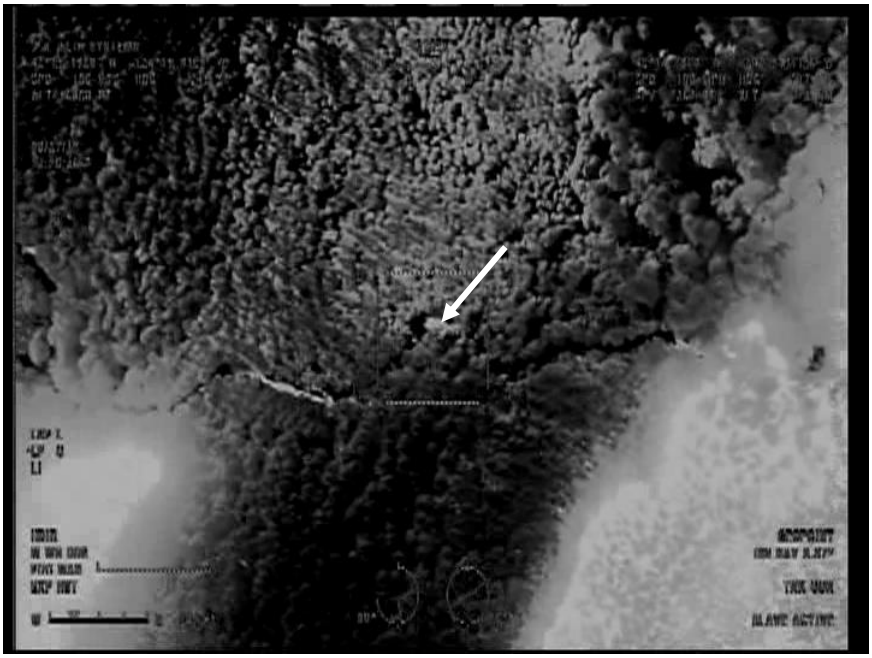
"I realized that was gunna work – it sucked the heat right out of it! They laid two strips for us to get out."

The engine crew talked to a strike team leader on the other end of the burning portion of road. Judging by their location dots showing in Avenza mapping, they realized they were separated by about 150 feet

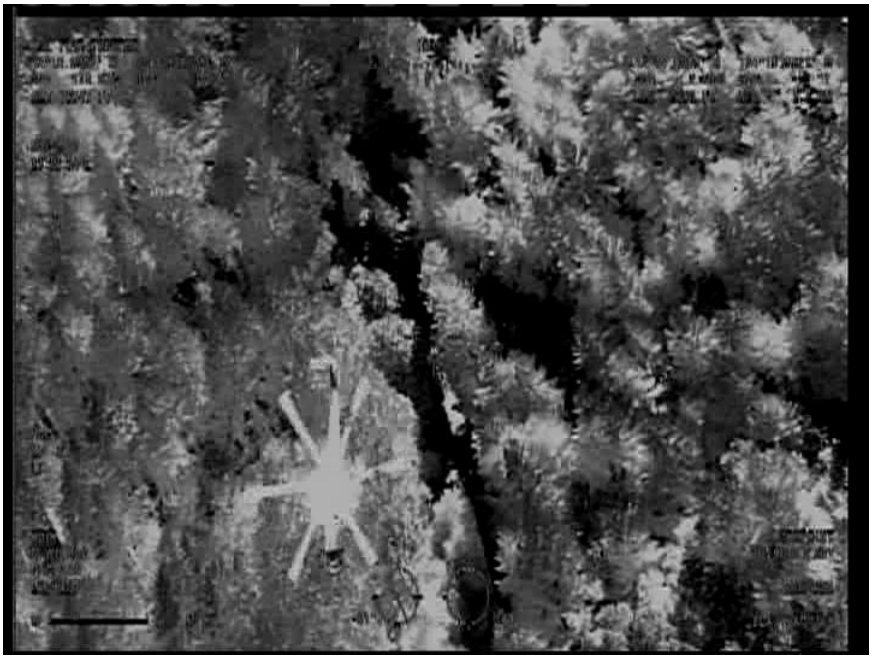
of fire activity. This gave the engine and tender the confidence to drive through the area immediately following the second Sky Crane drop. By 1645, they had safely re-joined other division resources with no personal injury or damage to the vehicles.

"Dirty Bird"

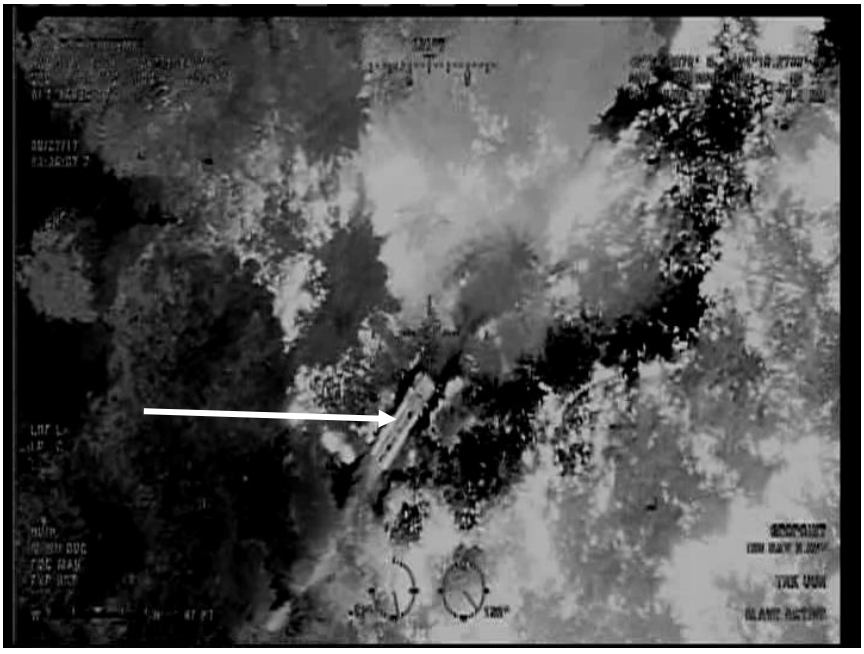
The Chetco Bar Fire had been utilizing Distributed Real Time Infrared (DRTI) technology that comes in the form of live video feed provided by an aircraft overhead at 20,000' feeding images to computers on the ground. The Branch Director and Field Operations (in a truck on a neighboring division), and incident management team members at the incident command post, were able to watch the live images from overhead during the unfolding situation. They were able to listen to the radio communication and personally see the vehicles drive through the burning area to safety.



DRTI image: arrow shows wider spot in the road where vehicles assessing their situation.



DRTI image: Sky Crane provided air support, cooling the area along the road.



DRTI image: Vehicle driving through the impacted section.

DRTI image: Vehicles have cleared the area.

What Went Well:

- **People were paying attention to changes in the working environment:** The smoke was noticed early and many people worked to gain perspective on the source of the activity. Once the spots happened, they were noticed quickly, and that information was rapidly shared with those that needed to know. The firefighters, faced with the choice of driving through the fire, saw the changed conditions and listened to their instincts. They pulled back and made solid decisions on how to proceed in ways that made sense to them during the situation.
- **The resources functioned as a team:** Without formally establishing a leadership structure at the portable tank, the resources functioned as a Team, dividing out tasks that served the entire group's positive outcome. They acted quickly and correctly, recognizing they had little time for action towards a positive outcome.
- **They stayed calm, thought clearly and made good choices**: Relying on their training, experience and intuition, they used action to solve the problem and remain calm through the event. By remaining calm and mentally functional, they did everything they could to insure they had the PACE model covered (Primary-Alternate-Contingency-Emergency).

"If anyone had gotten frazzled, this wouldn't have turned out like this. We were cut off, but we still had lots of options – we continued to fight, to think, to act and be engaged. We were not going to give up and become entrapped."

- **Command and Control was effective**: The division supervisor stayed focused on his people, helping from his end, by enabling those involved to hear and be heard on the radio. He also informed the operational chain and initial air resources of the unfolding situation.

- **Air support reassured and supported the ground resources:** Communicating with the aircraft above them added to the engine and tender's confidence level and help anchor them to the outside resources providing assistance.

> *"The Sky Crane was the right tool for the job – with the experienced they have in logging and dropping in chokers, their accuracy was spot on when we needed it with the water drop."*

- **Technology provided increased details:** This showed itself in two ways: Simple application of location services in Avenza mapping, and Distributed Real Time Infrared. Avenza improved situational awareness and gave a real spatial perspective for size and scope of the situation. The DRTI technology allowed overhead to better understand the situation, gave them additional details that those on the ground could not have known, and allowed them the rare ability to know immediately as things evolved in a remote area in the field.

What did they learn?

- *"We had heard that this was a fire day and that the fire was capable of moving fast and spotting long distances. I don't think we got what that meant until we saw it. In less than 2 minutes it went from truck sized spots to the full hillside."*
- Fire indices are not all measurable: *"You can see the wind, and feel the temperature rise, but it is hard to observe a Haines 6. Unless you have been on fires and have experienced what that degree of instability means, it can be hard to understand."*

Submitted by: The unified incident command teams on Chetco Bar Fire: Oregon State Fire Marshal, Oregon Department of Forestry, Coos Forest Protection Association, and Pacific Northwest Team 3