Rapid Lesson Sharing

Event Type: Crew Transport Burn

Date: August 6, 2022

Location: The SRF Lightning Complex
Six Rivers National Forest, California

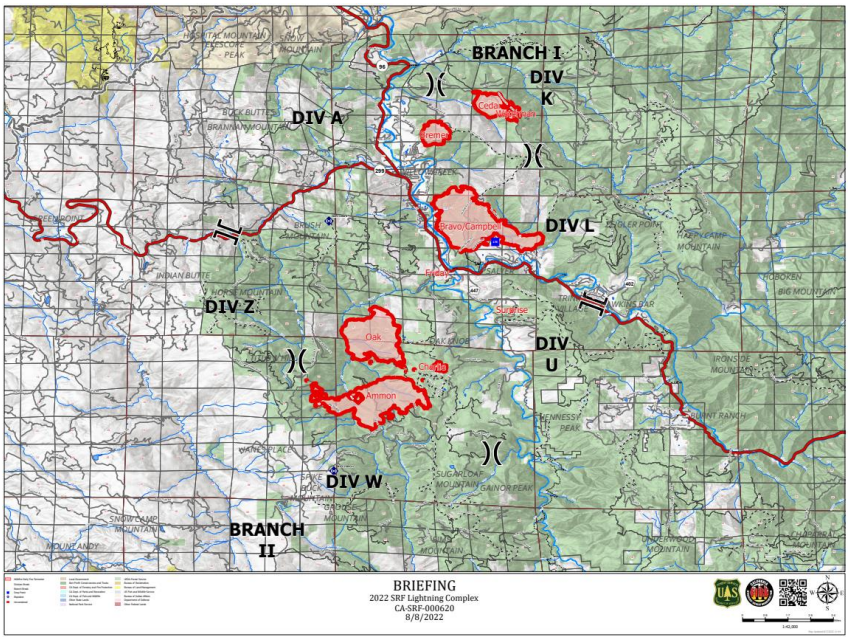
"Crew got spread out pretty thin holding the road."
- Crew 3 Crew Boss

"The fire made an impressive crown run upslope, it was across the road in no time."
-Task Force Leader (t)

"If I could pass anything along, it would be to maybe consider the fuel loading a little more."
-Division Supervisor

Brief Background

The Lightning Complex started as 12 separate fires ignited by lightning August 5 on the Lower Trinity Ranger District. Four of the fires were contained by the next day, within 3 days four of the fire merged into two fires, and within a few weeks, the 6 remaining fires merged into two fires, totaling over 41,000 acres.



Map of the 6 fires 3 days after the dry lightning storm ignited 12 fires.

Introduction

At approximately 1800 on August 6, resources engaged on the Waterman Fire reported a high intensity uphill run that resulted in the total destruction of 2 crew carriers parked on a road. Resources were not with the crew carriers at the time and there were no injuries.

Narrative

On the morning of August 6, three crews were assigned to the Waterman Fire, herein referred to as C-1 (HC1), C-2 (HC1), and C-3 (HC2IA). Immediately upon getting on the line, communications were difficult, as radio traffic was bleeding over from adjacent fires that started the same night. Fire was pressuring, but had not reached, the Waterman Ridge Road that was upslope and was flanking to the east below the road.

Fire was burning in a combination of moderate load broadleaf and conifer timber litter (TL3 & TL6), with mortality fuel from a winter storm 8 months prior, represented by pockets of high load (TL5). In the vicinity of operations on the road the aspect is west/southwest with a slope steepness ranging from 55%-73%, and the road is approximately 2/3 up from the creek bottom. Temperatures and relative humidity at the two closest RAWS, each about 6.5mi away were an average of 70° and 52%, with a max of 79°, and a min of 43%, and at the other an average of 73°and 64%, with a max of 89°, and a min of 39%.

Looking towards where firing was being conducted along the road.

There was heavy smoke and visibility was poor, and access could not be made to the heel downslope, so direct attack opportunities were limited. C-1 and C-2 were directed to assess the east and west flanks, respectively, and C-3 was staged at a prominent junction below the fire.

After recon, and with the fire continuing to pressure the road and flank northeast up the drainage, as it had been doing all morning, C-1 started firing to create a buffer along the road and stay squared up with the fire. Off the west flank C-2 was putting in some indirect line, cutting off a switchback in the same road. C-3 was helping hold the firing that C-1 was doing.

"The terrain was steep, and the fuel loading was heavy. Without eyes on the bottom, there was really no way to get a lookout in place, it was a no-go for downhill line."
-Crew 2 Crew Boss

Around 1300, C-1 started defensive firing operations along the road to minimize impact to the green from the approaching fire's edge. The firing plan was to keep the top edge of the Waterman Ridge Road ahead of the fire below. C-3 was holding the road and helping add fire where needed, with their crew carriers staged further west down the road where the fire was not visible at the time.

For most of the day shift operational period until about 1600, flanking fire with slow rates of spread (less than 0.5 chains/hour) and flame lengths of mostly 1-2', but up to 4', were observed. Winds were not dramatically influencing fire spread and stable atmospheric conditions moderated fire behavior, and the fire had spread only about 1000' uphill from the previous night's 2308 IR. Around 1600 the

inversion started to lift and fire behavior picked up incrementally, but it was not a sustained or dramatic increase.

A little after 1600, with the increased fire behavior, C-1 requested C-2 to come up the road to potentially help C-3 with holding. After discussions, C-1 and C-2 determined that the extra horsepower wasn't needed to help with holding, and C-2 went back down to finish the indirect line to bring fire to.

Since the fire behavior hadn't really picked up all day, by about 1700 C-1 started wrapping up firing operations- they had continued lighting only a short way past the fire below the road, not looking to get too far ahead, just keep it squared up.

As the inversion continued to lift, by about 1700-1730, air resources were engaged, and DIVS was working with a rotor wing. Resources on the Waterman Ridge Road observed that visibility had improved, but conditions were still too smoky to see how far downhill the fire was.

Around 1745, DIVS drove up the road to tie in with TFLD(t) and gave the tail number of the air resource to use as needed. Also around this time fire behavior started to increase, and closer to 1800 made a dramatic shift from a flanking surface fire with slow to moderate rates of spread, to a crown fire making a rapid uphill run. The uphill run was limited to a sub-drainage topographic feature that channeled the crown fire to a relatively narrow uphill swath.

The buggies were overtaken while parked on the road shortly after 1800 about half way between the east-west boundary of the high intensity section (0.25mi section of road).

Left photo: transition from low severity in foreground to high severity in background. Above photo: Looking from where crew carriers were parked in area of high intensity run uphill.

"The fire then made an impressive crown run upslope, it was across the road in no time. It started fanning out as it approached the ridge. It was unbelievable to me- both that the buggies were burning and how quickly the fire behavior transitioned. I think we were all feeling like the burning period was over prior to the run."
-TFLD(t)

Above: Condition of crew carrier hours after the burn occurred. The other crew carrier is out of sight down the hill.

From the IR perimeter on 08/05/2022 at 2308 to the time the buggies burned about 19 hours later, the fire had spread approximately 18 chains, and had been flanking through surface and ground fuels. At the point at which it transitioned into a high intensity crown fire, it burned approximately 0.25mi linear distance along the road with high severity fire effects. To the east and west of the high severity patch, the flanking fire resulted in low-moderate fire severity.

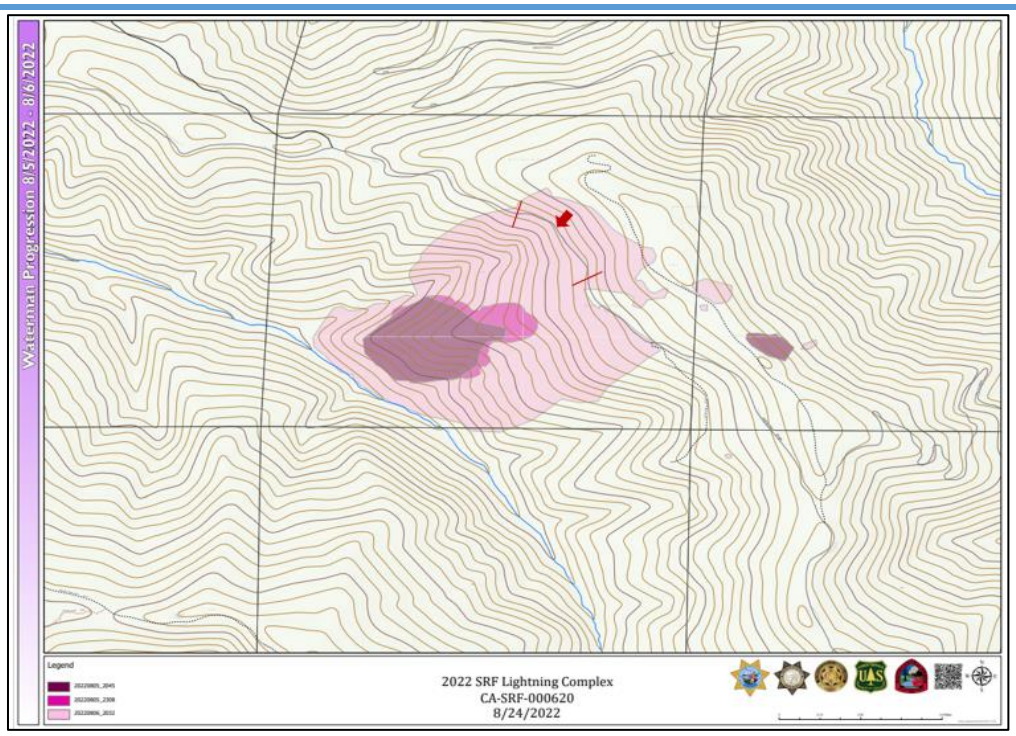
"We could see the column building on the Bremer Fire across the drainage, and the tac channel was getting overloaded- it was hard to piece together details but it was clear that all the fires were picking up. I heard a radio transmission where someone said, 'there's fire in the buggies'."

-Crew 2 Crew Boss

MAJOR EVENTS CHRONOLOGY

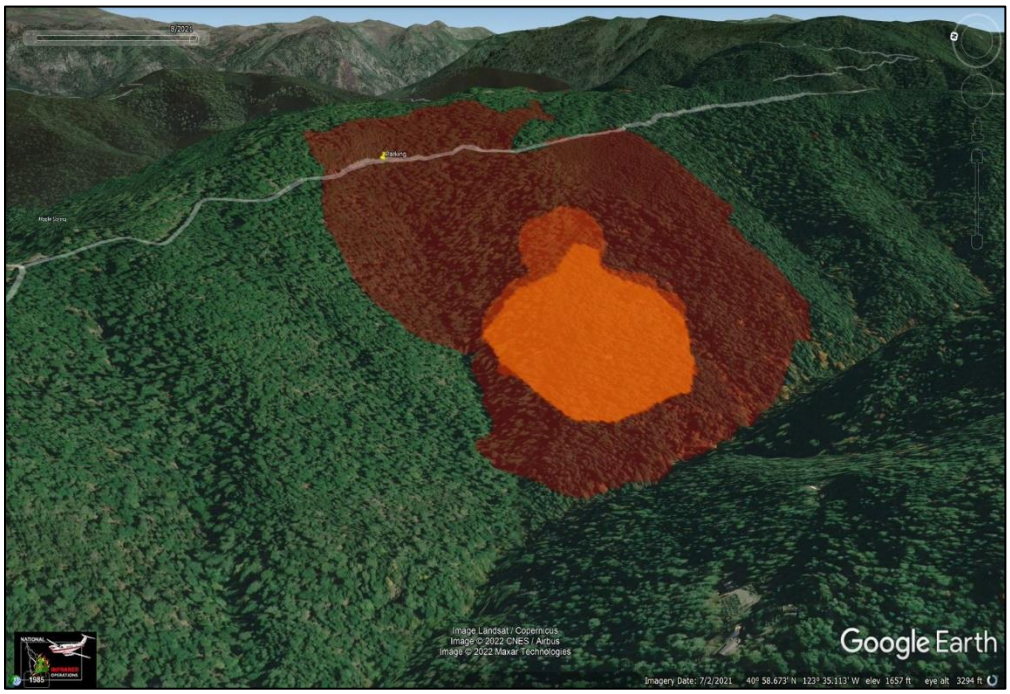
- 1100: C-2 started cutting indirect line on the west flank.
- 1230: C-3 went to hold road for C-1 firing operations.
- 1300: C-1 started firing operations.
- 1600: Inversion started to lift. C-1 requested C-2 to help hold road with C-3.
- 1700-1730: C-2 had returned to the west and C-1 was wrapping up firing with C-3. Air resources were engaged. Column building on adjacent Bremer fire.
- 1740-1745: DIVS drove up road and tied in with TFLD(t), C-3, and C-1.
- ~1800: Strong increase in fire behavior. C-3 's buggies burned in uphill run. No resources in vicinity, all personnel safe down the road.
- 1900: C-1 's buggies used to transport C-3 resources to USFS RD Office. SOFR on scene.
- 2100: All resources safely off line. AAR at USFS office

Fire Progression from IR flights on 8/5 at 2045 and 2308, and 8/6 at 2032.



Top image: Oriented north- red arrow location of crew carriers. Red lines indicate area of high intensity uphill run. Not visible in the smoky conditions during the fire, but visible on the contour map was how narrow the sub-drainage is at the creek bottom relative to the width at the road.

Bottom image: Looking northeast - yellow pin indicates location of crew carriers on Waterman Ridge Rd.



Top image: Crew carrier downhill from parking area.
Bottom image: Crew carrier being yarded up by two Type 1 wreckers simultaneously.

“Practices Worth Sharing” and “Lessons Learned”

The SRF Lightning Complex RLS revealed both “Practices Worth Sharing” (steps taken by those involved that are worthy of sharing) and “Lessons Learned” (opportunities to learn from experiences and incorporate in future decision making processes).

Practices Worth Sharing

A. The crew didn’t attempt to retrieve their buggies once the fire started making its run. The fire behavior changed so quickly they could have easily been caught.

B. Overhead maintained accountability for all personnel during and after the event, and responded calmly and in an organized but rapid fashion to shuttle the stranded crew off the line.

Lessons Learned

A. Apparatus Placement – “*You need to have safety zones for your vehicles as well as for your crew. It is worth investing some time into the decision on where to park before hiking away and going to work. I look for cold black as much as I can, but you also have to consider egress, terrain, snags, and other hazards*”. C-2 CRWB.

Stage drivers at vehicles, “*keep vehicles closer to crew*” or “*post lookouts at buggies or park buggies in black*.” C-3 Squad Bosses.

B. Consider fuel loading in potential fire behavior and build more margin in the plan to allow extra time in the event you’ll need it.

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