

PRELIMINARY SUMMARY REPORT



Fire Shelter Deployment

October 25, 2001

CA-BTU-12700

'70' Fire

Butte Unit

NORTHERN REGION

RCC-80

*The information contained herein is to provide preliminary summary information to dispel rumors, provide preventive information, and as a safety/training tool. The information in this report is subject to revision as additional information is developed.

SUMMARY

Strike Team 9150C from Marin County Fire Department was dispatched to the '70' Fire CA-BTU 12700 on 10/24/2001. The morning of 10/25 ST 9150C was assigned to Branch I, Division C. Two spot fires were reported on the down slope side of Bardee's Bar Road in Division C. Division C assigned the Strike Team, to pick up the spot fires. E1566, E1564, and E1560 were assigned to spot fire #1. E1565 and E1562 and a CDF Handcrew were assigned to spot fire #2. Spot fire #2 was picked up without incident. E1562 was reassigned to assist on spot fire #1. Fire flared up along the road in the vicinity of E1564, which was extinguished by E1562 preventing them from providing assistance to the crews assigned to spot fire #1.

The strike team's Senior Fire Captain, assigned to E1566, led eight firefighters on the hoselay down to spot fire #1. What had been thought to be spot fire #1 was the main fire. Fire intensity increased and the Fire Captain of E1566 ordered a withdrawal. The fire made a strong up canyon run during the firefighters withdrawal. Seven firefighters retreated into the black and deployed fire shelters while two firefighters ran up the hoselay to the engines parked on Bardee Bar Rd. After the 'fire run' the Fire Captain gave the order to take their fire shelters and head toward Bardee Bar Rd. A second 'fire run' occurred and the seven firefighters deployed a second time. After the second run the seven firefighters returned to Bardee Bar Rd. and their respective engines. They reunited with the two firefighters who had been able to outrun the fire. As the engines were leaving, flames impinged the drivers' side of E1566. Due to the intensity of the heat the Fire Captain ordered the firefighters to get out of the engine and they deployed on the lee side of E1566. After this wave of flames subsided, they went back into their engine only to have another wave of flames and heat force them out of their engine and they re-deployed. Once the Fire Captain was advised that the Bardee Bar Rd was clear, he gave the command to get in the engine and they drove out of the fire area. One firefighter experienced a dislocated shoulder and was treated in the field. One firefighter received a minor burn to the back of the neck.

CONDITIONS

Fuel Type: The predominant fuel type is mixed hardwood with some gray pine, approximately 50 percent cover, with occasional pockets of undergrowth. This fire burned as a Fuel Model 9. Fires run through the surface litter faster than a Fuel Model 8 with longer flame lengths. Fall fires in hardwood stands are predictable, however, high winds will actually cause higher rates of spread than predicted because of spotting caused by rolling and blowing leaves.

Slope: General percent slope in the area of the hose lay is around 40 Percent. The slope below the access road is between 45 to 50 percent. The area where the deployment occurred is an east aspect with a slope of approximately 30 percent. The percent slope from the deployment area to the roadway (due west) is approximately 55 percent.

Fire Behavior: This projection is for the general area of the deployment.

Fuel Model 9:	Low Windspeed (5-8)	High Windspeed (12-15)
Rate of Spread (ch/hr)	18	60
(ft/hr)	1188	3960
(ft/min)	19	66
Flame length (feet)	4	7
Heat per Unit Area (BTU/sq. ft)	350	350
Spotting distance (ft)	528	1584
Probability of Ignition (%)	50	50

The overall fire behavior at the time of the deployment was extreme. This was due to the combined factors of down canyon winds, the main river drainage course (a right and left-hand bend) and the arrangement of the spur ridges within the east west drainage. Slope heating from the time of day and the increased winds elevated the spotting potential.

Weather: Field observer weather observations in the Division B-C area at 1130 hours at an elevation of 1450 feet are dry bulb: 70 degrees; wet bulb: 50 degrees; relative humidity 22%. Winds were northeast at 5-8 miles per hour (mph) with gusts to 13.

At 1245 hours above the Poe Powerhouse at 1700 feet: dry bulb: 79 degrees; relative humidity: 8 % (taken with electronic device). Winds north to northeast 4 - 7 mph with gusts to 15.

At 1300 hours on east side of Feather River across from deployment site at 1200 feet (west aspect) dry bulb: 80 degrees; wet bulb: 56; relative humidity 19%. Winds northeast 12 - 15 mph with gusts to 17.

Fire weather forecast below 2000 feet was for temps mid 70's to low 80's. Relative humidity: 15 - 30 percent. Winds northwest to north 5-13 mph, becoming variable under 10 mph by mid afternoon.

SEQUENCE OF EVENTS

0700 The Strike Team Leader (STL) and Assistant STL of ST 9150C attended the morning briefing at the Incident Command Post and assigned to Division C and directed to meet Division Supervisor C at Drop Point 5.

0900 ST9150C met Division C Supervisor, recons line and conducts safety briefing with strike team.

- 1000 E1566 and E1560 assigned to spot fire #1. The two crews (six firefighters) begin a downhill hose lay.
- 1030 Strike Team Leader became concerned that the spot may be the main fire edge. E1564 (three additional firefighters for a total of nine) is assigned to spot fire #1. All three crews are briefed by STL regarding potential, instructed to continue, recon the edge of the fire, briefed on safety and instructed to put in laterals.
- 1100 Assigned E1565 and E1562 to spot fire #2.
- 1130 E1566 requests helicopter support. C-953 assigned.
- 1201 Fire Captain scouts ahead and notices spot fires in a drainage just beyond the nozzle of the hoselay, and another spot fire below the hoselay that is beginning to outflank their position. Fire Captain calls crews together and explains why they are going to pull back to Bardee Bar Rd, with the hoselay charged.
- 1201 Spot fire below E1566 and 1564 is now threatening the engines. E1562 arrives to control this spot fire.
- 1202 Crew on the hoselay are in the process of breaking down the first length of hose to reconnect the nozzle when the canopy below them ignited.
- 1203 E1566's hoselay is burned through, near Bardee Bar Road, and the three crews have no water supply. Fire Captain instructs crew to abandon hoselay and run up the hoselay.
- 1204 Area along hoselay is fully involved and escape route is blocked. (Two firefighters did manage to get through the area before it became engulfed.) Fire Captain instructs remaining 6 firefighters to abandon hosepacks, pull out fire shelters and run into the burn. Fire Captain radios that the crews are in the black with numerous spots around them and embers are overrunning their position. Requests air support.
- 1205 Fire Shelters deployed. Two firefighters arrive at road from below the hoselay.
- 1206 Fire blows over and winds stop. Fire Captain instructs crew to get up, take their fire shelters and head up the hill.
- 1207 Another strong gust of hot air and flames threaten the crew. Fire Captain gives order to deploy again.
- 1210 Seven remaining firefighters return to the road. All personnel accounted for. One firefighter received a minor burn on back of neck.

- 1211 E1566 is last engine to leave. Strike Team Leader-Trainee has remained to account for all personnel and stays with crew of E1566. While preparing to leave, Fire Captain is on radio verifying that Bardee Bar Rd. is clear to drive. **Bardee Bar Road is on a mid-slope with many "in" and "out" turns.** It is two miles from the incident site to Drop Point 5. Flames and heat hit E1566, forcing crew to take shelter on the lee side of the engine. Crew utilizes shelters as shields.
- 1212 Fire activity subsides and crew enters E1566, Fire Captain still trying to receive confirmation that the road is clear. Another wave of heat and flames impinge on E1566. Crew exits engine and take shelter again.
- 1213 Fire Captain receives transmission that the road is clear to exit. Crew get in E1566. One firefighter dislocates shoulder while attempting to exit fire shelter.
- 1217 E1566 arrives at Drop Point 5. All personnel are accounted for and the Strike Team leaves the area.

SAFETY ISSUES for REVIEW

- **Three and possibly four fire fighters had difficulty deploying shelters because the red pull-tabs separated from the polyvinyl strip used to access the fire shelter. Firefighters reported that they had to open the cover while wearing gloves. This failure delayed deployment. The policy requiring the appropriate modification of shelter covers needs to be reinforced.**
- Objectives may have been shifted between divisions without reallocating the necessary resources to accomplish the objectives.
- Three Divisions were assigned to one tactical net. There may not have been an appropriate number of tactical nets assigned for the complexity of the Division Assignments.
- Firefighters were under closed canopy and were sheltered from 20' winds. Firefighters need to review the effect of closed canopy on surfacing winds.
- Maintain control and supervision of crew at all times.
- Physical fitness played a significant part in the crews' ability to survive the fire entrapment.