

SUMMARY REPORT  
OF  
FATALITY OF DENIS LEE CULLINS, FFI  
BURNS TO

DOUGLAS MACDONELL, FC  
ROBERT MURIAS, FFI  
JEFF SMITH, FFI  
TOMMIE BROWN, FFI

CALIFORNIA DEPARTMENT OF FORESTRY AND FIRE PROTECTION  
MENDOCINO RANGER UNIT  
REGION I

September 29, 1987

On September 29, 1987, at approximately 1005 hours, Helitack Crew 102 was over-run by fire while working on the Lauder Fire. This accident resulted in the death of FFI Dennis Lee Cullins and the burns of FC Douglas MacDonnell, FFI Robert Murias, FFI Jeff Smith, and FFI Tommie Brown.

## FIRE LINE CONDITIONS

### Fuel:

The fire burned in a young (60-year-old) timber stand of Douglas-Fir, Black Oak, Madrone, and understory Ceanothus and Manzanita. This site burned severely approximately 60 years ago as reported by Mendocino National Forest employees. This old burn is evident from the standing punky Douglas-Fir snags and a large number of down rotten Douglas-Fir logs. There were ample ladder fuels on the site. The general canopy height was about 10 feet above the ground with many areas having canopy down to the ground level. In many places the understory brush was dying and or dead after being shaded out by the overstory.

Fuels on this site can best be described as an understory litter fuel with alive fuel component and a significant amount of 10, 100, and 1000 hr. dead fuel. The litter layer was the primary fuel carrying the forward spread of the fire. The larger dead fuels and the live fuels added to the total heat load and the longer burnout time. The fluffy uncompacted black oak leaf litter layer varied in depth from less than an inch to 4 inches.

### Weather:

California was under a stable high pressure ridge before, during and after the fire. This high pressure cell was characterized by high temperatures (90s to 100 degrees) low humidities and mild south easterly winds. Night time inversions were not deep enough to affect the burn site. Sea breeze intrusion did not affect the site under this high pressure pattern.

With weather readings obtained from an observer on the left flank at the time of the accident, nearby NFDRS weather stations, observations of the pilots, and readings taken during the investigation, the weather at the accident was determined to be:

Temperature:	78 to 82 degrees, midrange 80
Dew Point:	34 to 36 degrees, midrange 35
Relative Humidity:	18 to 22 percent, midrange 20%
Wind (partially sheltered)	SE 2-5 mph, midrange 3-4
State of Weather:	Clear
(winds are variable, ranging from calm to gusts of 7-9 mph, with shifts in direction of 90 degrees from the prevailing direction)	

## Topography:

The fire was on the mid to upper third of an east facing slope. The base of the fire was at 3800 feet on a slope that ranged from 2200 feet in Dashiell Creek to 4804 feet at the ridge top. The shelter deployment site was near the 4200 foot elevation. Slopes varied from 40% near the bottom of the fire to 70-75% on the upper slopes.

The slopes were 45-50% at the shelter deployment site with slopes of 70% + below and above the deployment site. The slope was about 65% 15 feet below the deployment site and increased to over 70% 50 feet below the deployment site.

The general face of the mid-slope was fairly flat. There are numerous small (5 to 15 feet deep) gullies along the slope that acted as natural chimneys. These gullies did not always continue to the ridge, many of them would stop mid-slope.

## SEQUENCE OF EVENTS

At approximately 0720 hours, Copter 102 arrived on the Lauder incident with Captain MacDonell and four fire fighters. At this point the fire had extended to approximately 20 acres in heavy vegetation on an extremely steep east facing slope in a canyon oriented north to south. The crew was unloaded in a small clearing below the base of the fire. Captain MacDonnell led the crew to the right flank of the fire. At this time, the suppression efforts on the right flank were progressing with moderate success and consisted of a hoselay operation, dozer line construction and some hand line construction efforts by engine company crews. The fire behavior at this point was moderate.

As the Helitack Crew proceeded to travel up the right flank of the fire, Copter 101 Crew arrived and deployed personnel on the ridge top above the fire. By this time, the Kneeland Helitack (C 102) Crew had reached an area beyond the dozer line and hoselay on the right flank and was proceeding to hot spot above the engine crews. During this period of time, bucket drop operations were taking place by Copter 102 and an air operation had begun under the direction of Air Attack 110 utilizing the copters and air tankers.

As the crew from Copter 102 proceeded up the right flank, moderate changes in weather conditions were noted by others on the fire and the fire was making a few minor runs to the ridge top. The Copter 101 Captain requested by radio that Helitack Crew 102 join him on the ridge top. As the crew proceeded up the right flank toward the top in unburned fuel, they noticed a small flare-up below them. With the flare-up, the crew became extremely concerned for their safety. Their escape route had been over-run by the fire. It was much too hazardous and difficult to try to cross the brush field to get further into the green, and the Captain told them their escape would be into the burn. The first flare-up was followed shortly by a significant increased activity described as 20 ft. flame lengths and a "wall of fire" just below their position.

The crew entered the burn approximately 70 to 80 feet in a southeastly direction. Because of large, burning old downed logs and the intense heat, they turned back momentarily and deployed their shelters in a small opening. The heat was much too intense and all received burns before shelters were deployed. All had difficulty in deploying shelters because of burns on their hands.

A message was broadcast that the Crew was in trouble and needed water drops. The pilot of Copter 102, overheard the message and began dropping water on the crew. After several water drops from Copter 102, airtankers began dropping retardant on and below them.

Rescue efforts were begun by units at the scene and additional helicopters were ordered for medical evacuation.

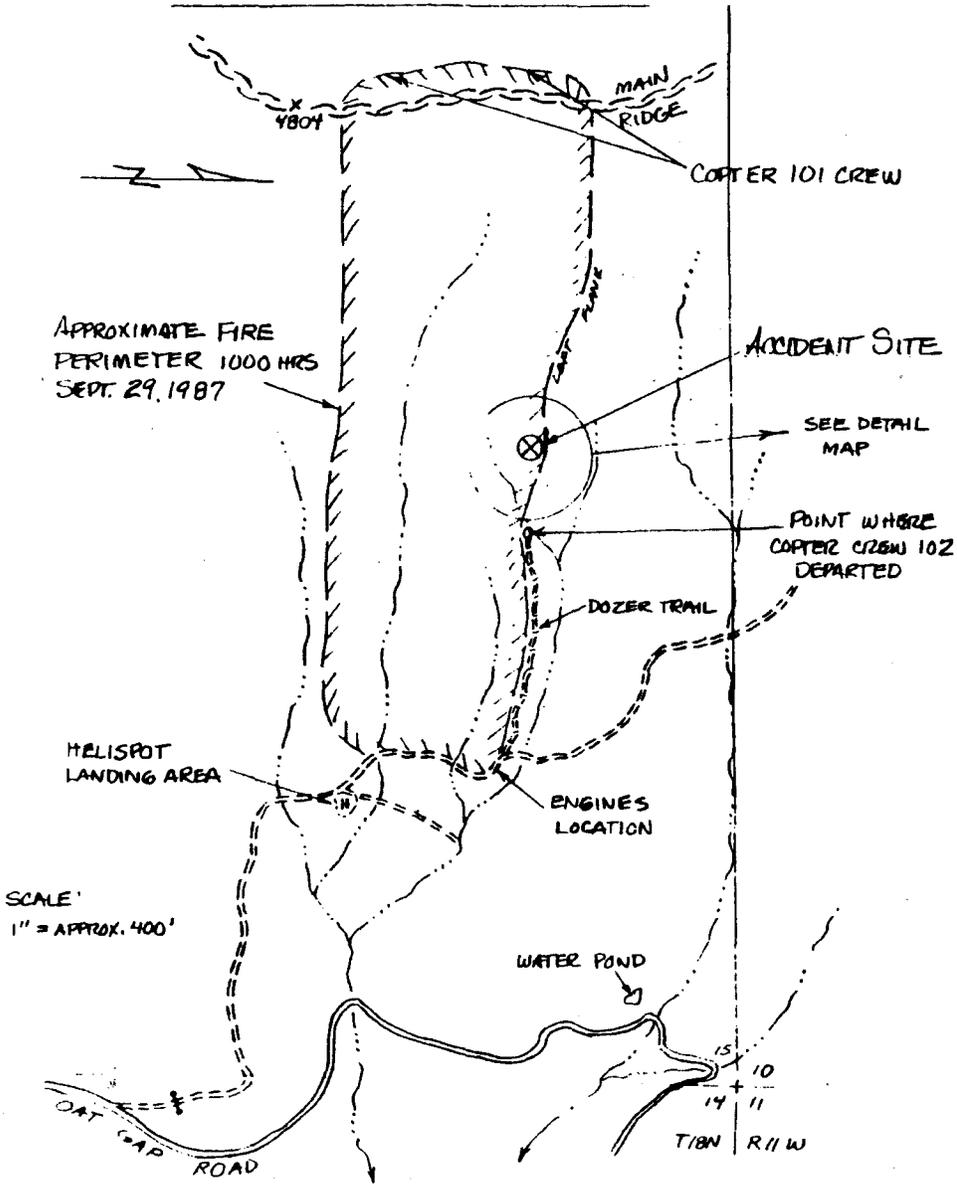
All injured were removed from the hillside by long lines from the two Coast Guard helicopters and transported to a nearby mill site for medical stabilization prior to transporting to the Chico Burn Center by Advanced Life Support Helicopter.

The last burn victim was removed from the accident site by 1314 hours.

#### CAUSE OF ACCIDENT

Helitack 102 Crew was trapped when the fire increased in intensity in heavy fuel below the crew. Steep slopes and topographic features such as chimneys and chutes caused the fire to cut off the escape route, and the fire made increased uphill runs over the location of the crew.

LAUDER FIRE ACCIDENT LAKE COUNTY



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LAUDER FIRE ACCIDENT

