

Memorandum

: Lewis A. Moran, Chief Deputy State Forester

Date: October 27, 1970

5A-10-27

From : Emery Sloat, Deputy State Forester

Subject: ADMINISTRATION
Report of Investigation
Arthur McMillan Accident
District V

Attached is the report of the investigating committee which you appointed in connection with the burn injury sustained by Fire Fighter Arthur McMillan of the San Benito-Monterey Ranger Unit during the Melendy fire on August 1, 1970.

As far as can be determined, the filing of this report concludes the assignment of the committee and it should be deactivated.

Emery Sloat
EMERY SLOAT
Deputy State Forester

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cc: R. Bawcom

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L. A. Moran, Chief Deputy State Forester
M. Fumponis, Deputy State Forester
G. Snow, Training Officer
C. Hooper, Safety Coordinator

September 8, 1970

0-9-8

SAFETY

Firefighter Burn Injury

Arthur McMillan

Helendy #258 Fire, 8/1/70

San Benito-Monterey Ranger Unit

District V

On September 4, Assistant Deputy Carl Albertus reported the following to me regarding subject Firefighter.

Although initially hospitalized at Hollister, he is now in a Monterey hospital. It appears he will be there for six weeks for leg and hand skin grafts. It is understood that his face is O.K. and that he will have no permanent disability.

J. H. Hastings, Deputy State Forester

Emery Sloat, Deputy State Forester

August 4, 1970

0-8-4

**SAFETY
Firefighter Burn Injury
Arthur McMillan
Malendy #258 Fire, 8/1/70
San Benito-Monterey Ranger Unit
District V**

At about 1130 hours on Saturday, August 1, Firefighter Arthur McMillan, age 17, and stationed at the Hollister Forest Fire Station in San Benito County, suffered burns on the Malendy #258 fire located about ten miles south of Paicines in San Benito County. It is understood that subject received first and second degree burns on legs, arms, hands and neck, with about one-third to one-fourth of his body burned in varying degrees. Subject, who resides in Marina, Monterey County, was taken to the Hazel Hoskins Hospital in Hollister for treatment following the accident. It is understood that burns are of a nature that will permit him to go home on Wednesday, August 5.

In response to your request, the following investigation team is appointed to investigate this accident:

Chairman: Carl Albertus, Asst. Deputy State Forester, District V Headquarters

**Members: Richard Dawson, State Forest Ranger III, San Benito-Monterey R.U.
El Bouling, Associate Ranger, District V Headquarters
Geoffrey Snow, Training Officer, State Forester's Headquarters**

Observer: Cassius Hooper, Safety Coordinator, State Forester's Headquarters

The team will be expected to give a full report on the cause of the accident. In addition, recommendations should be made on what can be done to prevent similar accidents in the future. This investigation team will meet at the Hollister Forest Fire Station at 0930, Friday, August 7, to begin its investigation.

L. A. MURAN, ACTING STATE FORESTER

By

J. H. Hastings, Deputy State Forester

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**cc-L. Muran
G. Snow
C. Hooper**

REPORT OF INVESTIGATION

re.

McMILLAN ACCIDENT

August 1, 1970

ACCIDENT INVESTIGATION REPORT

At approximately 1315 hours on August 1, 1970, while engaged in fighting the Melendy Fire in San Benito County as a member of the Hollister Forest Fire Station crew, Forest Fire Fighter Arthur D. McMillan suffered severe burns of the hands, arms, legs and face.

A committee was appointed by Chief Deputy State Forester Lewis A. Moran to investigate this accident and the committee devoted the entire day of August 7 inspecting the area of the accident scene, hearing testimony of employees directly involved in the accident and reviewing the various facets of the case. The committee members are:

Carl Albertus, Assistant Deputy State Forester - Chairman

Richard Bawcom, State Forest Ranger III

Edward Dowling, Associate State Forest Ranger

Geoffrey Snow, Training Officer

Observer - Cassius ^{Hoop} Snow, Training Officer

Background

The Melendy Fire No. 258 was reported on August 1, 1970, at 1125 hours. Fire crews on pumper trucks, bulldozers and air attack planes were immediately dispatched including the Hollister crew, under supervision of Bradley Edwards, Fire Captain. Because of travel distances, road conditions and problems of finding the proper road to reach the fire, initial attack on the fire by ground forces was delayed and it is probable that the Hollister crew was the first to make actual contact with the fire, at approximately 1310 hours. At this time there was radio communication between Fire Captain Edwards and air drop coordinator Oscar Burrell, who was directly overhead in a small plane.

Through the radio conversation between Edwards and Burrell, it was decided that the Hollister crew would attempt to control that portion of the fire that was burning towards a "two wheel track" road that traversed a relatively narrow and shallow canyon with a ground cover of grass, some low scattered brush and on the hillside across the road from the fire, an open woodland type of oak and digger pine. Between the two wheel tracks of the road there was a center strip of grass.

Edwards drove his truck and crew from the head of the canyon (point A, Figure 1) downgrade for approximately 1200 feet to point B, where he stopped the truck, the four firefighter crew unloaded and upon instructions from Edwards, McMillan obtained a back pump and McLeod tool from the truck; Allen Doerr a back pump and Steve Johnson a McLeod tool and drip torch. They also had fusees for backfiring. The fire at this time was 30 feet to 50 feet above the road backing downhill and burning rather slowly. The plan was to backfire along the road from point B upcanyon to point A with the truck following to pick up any spot fires that might develop. The crew members were instructed accordingly.

Almost coincidentally with the start of the backfiring operation, a radio message was received from Airco (Oscar Burrell) that the main fire had spotted across the road about 100 yards downcanyon from where the truck was stopped. Upon receipt of this message, Edwards accompanied by a firefighter serving as nozzleman, drove the truck to the area of the spot fire and initiated control action on it.

The three firefighters who remained at point B attempted to carry out the back firing instructions but had difficulty in making the back fire burn in from the road, as they were firing into the light wind. At this time Doerr and Johnson were working close together upcanyon a short distance from McMillan. After a matter of a very few minutes the main fire, which had been burning quietly and slowly, was fanned into great activity by a sudden increase in wind velocity. According to descriptions given by the three fire fighters, the flames lay out flat across the ground and almost immediately reached the road. The fire fighters reported that spot fires appeared at once across the road and these, too, spread rapidly. Doerr and Johnson attempted to control these but were driven back. They then broke and ran together, following the route shown on Figure 1. When the fire first hit the road, it placed fire between McMillan and the other two fire fighters.

When Airco observed that the fire had jumped the road, he called for an air drop ahead of the fire at the toe of the uphill slope (see Figure 1.) This drop was intended to slow the fire so that it would not reach the ridge top too quickly. He was not aware that the three fire fighters were in trouble when he ordered the drop. He could not see them.

After Doerr and Johnson had run across the relatively flat ground and started up the steep slope to Point C, they realized that they could not outrun the fire. They stopped by a small oak tree and at this time they saw the area that was treated by the drop referred to above. They were able to circle slightly and then drop down the slope into the treated area. They remained in this treated island while the fire burned around them. When

the fire had moved past the treated island, they walked through the burned area and returned to the truck. They heard McMillan cry out once while they were in the island.

Soon after the truck was moved, McMillan looked down the road (downcanyon) and saw the fire had crossed the road. He walked to this spot and started spraying with the back pump. He then noticed that behind this spot the fire had crossed the road and started up the back side of the little hill in a small ravine. He also noted that the fire had crossed the road above him between himself and where Doerr and Johnson had been working. At this time McMillan gave up all further attempts to fight the fire. Instead, he started to move northerly, straight up the ridge. He worked himself into a triangular area of unburned grass but he was entirely surrounded by fire. Realizing that the grassy patch would burn immediately, he selected an area where the flames seemed relatively low and attempted to jump through the flames into the burned area where, he felt, he would be safe. Because of poor visibility from the heavy smoke, McMillan tripped over a down log which he did not see and fell on his back atop the back pump, in hot coals and burning grass. He arose immediately, beat out the flames on his clothes and walked back towards the area where he could hear the truck backing to. He then dropped the back pump and walked the remaining 20 feet to the truck at about Point E.

McMillan was flown by U. S. Forest Service helicopter to Hazel Hawkins Hospital at Hollister. While he apparently did not suffer third degree burns as originally reported, his hands, arms, shoulders, face and legs received

second degree burns. He reports he had personally owned gloves in a pocket of his jacket on the truck but did not take the time to secure them before attacking the fire. He had tied a wetted bandana handkerchief over the lower half of his face which was effective in reducing severity of the burn on the covered area. He was not wearing goggles because they would not fit over his prescription lens glasses.

After examining the area in which the accident occurred and interviewing witnesses to the accident, including the injured party, the committee makes the following findings:

- 1) The decision to use the road as a control line was made as the result of a two-way discussion via radio between Edwards and Airco. It appears that Edwards accepted Airco's evaluation of the fire situation as seen from the air without giving adequate consideration to factors which could affect fire behavior and crew safety that were probably discernable from the ground. Distances, steepness of slope, height and density of ground cover and speed of surface winds cannot be accurately gauged from an elevation of 2000 feet.
- 2) Edwards had very real problem of being in dual role of truck driver and supervisor of crew members, a most difficult assignment. He was also responsible for evaluation of fire problems and use of equipment and personnel to control fire.
- 3) Edwards was lulled into a false sense of security by fact that the fire was apparently burning downhill at a slow rate in light cover, with only a slight upcanyon wind. As long as the truck was with the crew, it could provide personnel protection in case of flareup as the ground cover was relatively light and fire could be quickly knocked down with a hoseline.

4) Increased fire activity could be expected due to development of unstable air conditions from solar warming of air and with consequent accelerated upcanyon air flow. The spot fire reported by Airco should have alerted Edwards to possibility that wind velocity was already increasing.

5) It would have been better strategy for the entire crew to have attacked the spot fire reported by Airco. Unless this fire was controlled, holding the main fire at the road upcanyon from the spot fire would have been futile. Whether or not the full crew attacking the spot fire could have controlled it is unknown, but the attack made by Edwards and his hose-man failed to control it.

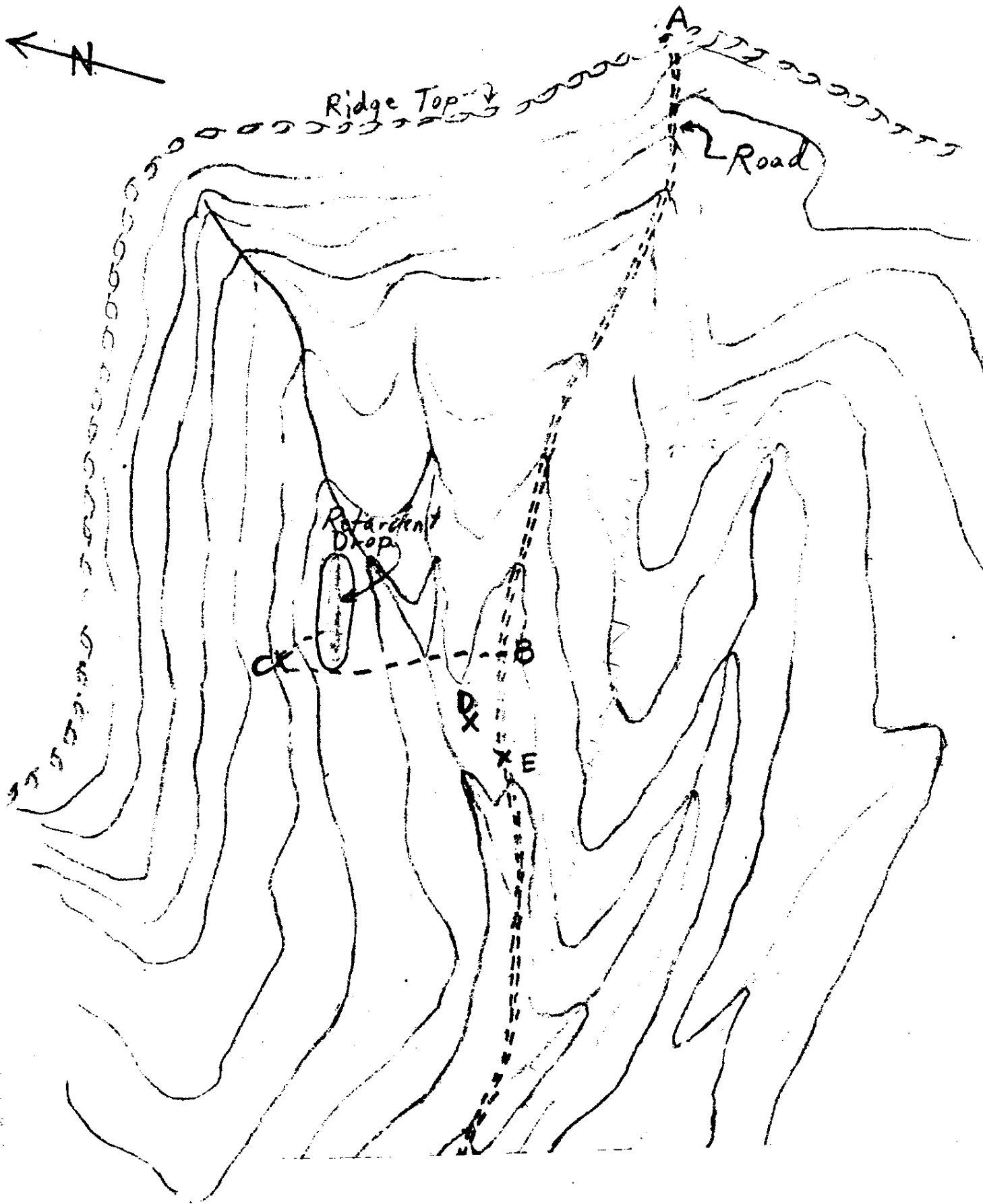
6) With fire already burning on both sides of the road downcanyon from the three fire fighters with an upcanyon wind plus an uphill slope moving the fire towards the three fire fighters, they should not have been left without protection from the fire truck.

7) While it would not have had any effect on where the fire was finally controlled because of the spot fire which remained uncontrolled, it would have been more logical to start backfiring from Point "A" towards Point "B" rather than from Point "B" towards Point "A". At Point "A", there was an anchor point to start from and the back fire would be running away from the crew uphill in two directions. An anchor point was not established for the crew to fire from and provide crew protection before truck left for the spot fire.

Committee Recommendations

1. While on fireline, all personnel should wear hard hats, goggles, gloves and flameproof shirts provided by the State. Had McMillan been so equipped, his burns would have been far less severe. Except for flameproof shirts similar to those provided by U. S. Forest Service, District V will soon provide all fire-going personnel with the above listed safety equipment and require their wearing whenever conditions warrant.
2. Management should establish and maintain training as number one priority of station operations. Special projects such as painting, concrete pours, etc., will not be conducted at the expense of time needed to conduct the standard training program and complete same promptly.
3. Fire Captains and Fire Apparatus Engineers need more training in fire behavior and the factors that affect it. Too many injuries or near misses are the result of the slow-burning fire suddenly blowing up.
4. The Fire Captain or Fire Apparatus Engineer who must operate the fire truck and also supervise the actions and safety of his crew is at a distinct disadvantage. The committee members are well aware of the factors that result in the "one man fire truck operation and crew supervision" situations, but the members cannot emphasize too strongly the need to budget for and provide enough trained crew leaders that a single leader is not required to operate a fire truck, supervise the nozzleman and also provide supervision of the balance of his crew members who must of necessity be strung out over a considerable length of fire line. Two supervisory personnel per truck is a must both for efficient operation and of even more importance, the safety of the crew members.

5. Airco can and does render an invaluable service by keeping ground forces informed by radio of general fire conditions, spot fires, ground cover openings, road locations, retardant drop plans, etc. However, ground force leaders must evaluate certain of the information supplied them by Airco in the light of their own knowledges of fire behavior and a much closer view of actual conditions as they exist on the ground. Many important details are either missed entirely or distorted when viewed from 2000 feet. As a part of our training program, these points must be impressed on ground forces leaders at all levels.



~~Moran~~ E.M.
District V J.W.

8/1/70
1335

A firefighter from San Benito was burned severely over about one third of his body, getting a vert helicopter to pick him up & take him to hospital in Hollister.

1270 - Firefighter name is ART Mc MILAN. Received 1st & 2nd degree burns on legs, arms, hands & neck. Hands burned severely. Is 17 years old & will be 18 in about a month. Home is in Marina (near Ft Ord on Highway 101). Mother name is Ruth Mc MILAN. Hospital name in Hollister is HOPE HAWKINS.

8/1

510 - From District V

Has third degree burns on hands
+ 25% of body.

8/2 1100 From District V

Firefighter was standing at the
top of a hill looking for spot fire
when the fire made a run up the
hill & overran him.