

SUBJECT OF INVESTIGATION:

EUCLID FIRE BURN INJURIES
OCTOBER 31, 1981

PERIOD OF INVESTIGATION:

OCTOBER 31, 1981 - NOVEMBER 9, 1981

REPORT PREPARED BY:

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DATE OF REPORT:

NOVEMBER 9, 1981

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SYNOPSIS

On October 31, 1981, a vegetation fire occurred near the intersection of Highway 71 and Euclid Avenue, south Chino area. Fire cause investigators placed the origin near the roadside of Highway 71, NW 1/4 of Section 7, T-3,S R.7.W SBBM. Cause of the fire was of suspicious nature.

Prior to this fire occurrence, weather conditions were Red Flag Stage III for several days. Relative humidity ranged from 10% to 17% with strong and gusty Santa Ana winds prevailing in the fire area.

First-in units gave condition reports estimating acreage to be 50 acres on arrival, with winds 30 to 40 miles per hour gusting to 50 miles per hour, extremely rapid rate of spread.

This fire eventually consumed 700 acres before being contained at 5:00 p.m. on October 31, 1981.

During the process of containment and control, two burn injuries occurred at approximately 1:00 p.m.. At 1:05 p.m., the San Bernardino Ranger Unit Command Center received notification from the Incident Commander (6516) that these injuries had occurred to California Department of Forestry personnel assigned to Engines 6578 and 6580. Following this advisement, arrangements for ambulance evacuation and initial treatment were initiated at 1:16 p.m. on October 31, 1981.

It was later established that the Fire Apparatus Engineer from Engine 6580 who had been assigned with one fire fighter to assist Engine 6578 had received burn injuries shortly after arrival at his assigned location. The burns to this subject were eventually diagnosed by attending physicians as first, second and third degree on face, hands and legs.

The other burn victim, a fire fighter from Engine 6578, received only minor facial burns and after initial treatment, he was released by the doctor, Chino Community Hospital.

Both burn victims were transported via ambulance to Chino Community Hospital where both received stabilization and initial professional treatment.

Both engine companies, 6578 and 6580, were assigned to work an area on the northwest flank of the fire. They had taken up positions on a dirt road that traversed a long ridge that ran somewhat east and west. The fire approached from the south at a rapid rate of spread and overran their position before they could take evasive or defensive action.

INVESTIGATION

On October 31, 1981, at 5:00 p.m., the following named investigators were assigned to investigate, gather facts and details relating to burn injuries received by two California Department of Forestry employees while they were actively engaged in fire suppression activities on the Euclid Fire, October 31, 1981, Fire No. 1029, San Bernardino Ranger Unit:

Walt Turner, Forester II, Region VI (Team leader)
Ernest Wasley, Fire Prevention Officer, SBRU
Edward Reed, Fire Apparatus Engineer, SBRU
John Burch, CDFEA representative, assigned 11/1/81
(CDF employee, Riverside County)

Investigators Turner and Wasley initially met at San Bernardino Ranger Unit Headquarters, during which time they were briefed by Chief Keith Metcalfe, SFR-III.

The burn victims were identified as FAE Derek Smethurst, assigned to Engine 6580, and CDF FF Christian Albertsen, assigned to Engine 6578.

Investigators were advised during the briefing that FAE Smethurst was currently receiving treatment at Chino Community Hospital, but arrangements were in progress to fly him to the Sherman Oaks Burn Center by helicopter.

CDF FF Albertsen, having received less serious burns, had been treated at the same hospital, then released.

At approximately 5:20 p.m., Investigators Turner and Wasley proceeded to the Chino hospital and arrived there at approximately 6:05 p.m., at which time they also met with Investigator Ed Reed, who had been earlier assigned as hospital liaison. It should be noted that following the emergency room treatment, victim Smethurst was moved by hospital personnel to another room for continued observation, diagnosis and treatment. Realizing the extent of injury to be more than originally estimated, Reed made contact with the San Bernardino Emergency Command Center to advise Chief Metcalfe of the status at the hospital and the condition of Engineer Smethurst.

Subsequently, air evacuation for victim Smethurst to Sherman Oaks Burn Center was immediately expedited.

While at the hospital preceding Engineer Smethurst's being evacuated, investigators were able to obtain a brief taped interview with him. This interview, reference Statement section, has been made a part of this report and has been transcribed verbatim.

Smethurst was flown from Chino Community Hospital via Life Flight helicopter at 6:40 p.m., October 31, 1981, arriving Sherman Oaks Community Hospital, Burn Center at 7:04 p.m., October 31, 1981.

Investigators Turner and Wasley then proceeded to Prado Conservation Camp, where they met with Engineer Kuhn, operator of Unit 6578. It was off of this unit that Fire Fighter Albertsen had received minor burn injuries while under the direct supervision of Engineer Kuhn.

A taped interview with FAE Scott Kuhn was conducted at the location, with excerpts from that tape contained in this report, reference Statement section.

Engineer Kuhn related the following: He had been assigned to move his engine up the road to a ridge south of where other backfiring activity was in progress. His assignment was to backfire along that road and hold the fire from jumping that stretch of road.

On arrival at that location, he assessed that he would require additional help and advised IC Tom Barnes (6516) that he would need assistance. This assistance arrived at his location in the form of Engine 6580, FAE Smethurst and Fire Fighter Dave Valdivia. Prior to Smethurst arriving at 6578's location, Kuhn attempted to fire out along the road but was unsuccessful, so elected to hold the fire when it reached the road. FAE Kuhn's crew consisted of Fire Fighters Albertsen and Larned. A charged 1½" protection line was assigned to FF Larned to provide both protection and suppression action. Due to lack of visual contact with the fire, Engineer Kuhn began to back 6578 (his unit) down the road toward a saddle directly northeast of his location and to his rear. About this time, Engine 6580 arrived at the scene and was directed by Engineer Kuhn to move back as he was backing down. The operator of 6580, Smethurst, then parked his unit on the northeast side of the ridge saddle and on foot approached Engine 6578, making personnel contact due to excessive radio traffic. After a brief discussion as to the circumstances, FAE Smethurst left to return to his engine. FAE Kuhn then resumed backing with the assistance of fire fighter Albertsen. Seconds later the fire hit their position and FAE Kuhn, using the engine's P.A., directed FF Albertsen into the vehicle's enclosed cab. Albertsen had already received minor burns at this time. Fire Fighter Larned remained outside near the left front of the engine, utilizing the hose line to protect himself and the engine. Properly clothed, FF Larned received no injury during the fire blowup.

Shortly after the fire had passed, FAE Smethurst appeared at the passenger side of Unit 6578, displaying burned hands. First aid treatment to his injuries commenced at that time, consisting of application of water and placement in a burn pack carried aboard Engine 6580. Notification was made of the incident to IC Barnes (6516), who then ordered an ambulance through the San Bernardino ECC. Victim Smethurst was then transported to a meeting point with the ambulance and was then transported to Chino Community Hospital by Kniffen Ambulance at 1:27 p.m., October 31, 1981. Arriving at 1:34 p.m., October 31, 1981, the distance obtained from the ambulance company was 6.5 miles.

Fire Fighter Albertsen was later transported by the same ambulance company and to the same hospital, treated and released.

Fire Fighter Albertsen's burns consisted of first and second degree to his nose and areas below his eyes. It was later learned that Albertsen was fully equipped with protective clothing, but had his shroud open around his nose and under his goggles, therefore receiving burns through these open areas.

F AE Kuhn was not injured during this blowup nor was Fire Fighter Dave Valdivia, who remained at Engine 6580's location throughout the blowup, approximately 150 feet northeast of where 6578 was parked and overrun by the fire.

On October 31, 1981, at 8:12 p.m., other interviews were conducted at the Prado Camp location with Fire Fighter Brad William Larned. Reference Statement section this report.

FF Larned could only relate that it was very hot and smokey during the blowup condition.

It should be noted that FF Larned's experience consists of one year as a paid-call fireman and four months as a CDF fire fighter. It is the opinion of the investigators interviewing FF Larned that he should be complimented for his actions during this fire blowup. Larned remained outside with little protection to himself all the time utilizing the protection line that he was assigned to. His actions may possibly have prevented further personnel injuries and equipment damage.

On October 31, 1981, 9:17 p.m., investigators contacted FF Dave Valdivia at the fire scene, at which time a taped interview was obtained. For his interview, reference Statement section of this report. FF Valdivia related in brief that FAE Smethurst left him at his unit 6580 and advised him to watch the draw saddle, then proceeded on foot to 6578's location. FF Valdivia then was able to observe the fire moving in their direction at a fast rate of spread. He attempted to use the radio to alert 6578, but was not successful due to other radio traffic. He then manned the protection line. He did not see FAE Smethurst start to return to 6580's location, but it appeared to him that Smethurst was still talking when the fire hit their location. The whole thing occurred within 10 seconds. Afterwards, FF Valdivia went to Engine 6578's location and observed Smethurst sitting on the ground and his gloves next to him. He could not recall Smethurst having his gloves on when he walked to Engine 6578's location, but did recall that Smethurst's shroud was hanging loose around his face.

FF Valdivia further stated that the whole thing happened real fast and that during the blowup, the wind increased over what it was blowing when they first arrived at that location.

Investigators concluded October 31, 1981, to resume on November 1, 1981.

Investigators met at the Prado Camp and conducted a taped interview with the other primary burn victim, Christian Albertsen, who was back on duty at the time. Reference Statement section this report.

F AE Kuhn consented to accompany investigators to the incident scene and with his help, staff vehicles were located with respect to locations of 6580 and 6578 the day before. Photos were taken of the scene and measurements obtained at that time.

Fuel type in the area where the blowup occurred can best be described as light grass ranging in height from 4" to 12", excessively overgrazed.

Topography

The area in which the incident occurred was very rough and broken. The two topographic features influencing fire behavior at the particular side of the incident were Abacherli Canyon which runs from Highway 71 to just south of the incident and a small saddle at the site of the incident just north of Abacherli Canyon.

Weather

The weather data at 1426 hours on 10/31/81 from Duarte and Temescal Stations, which are some distance to the north and south respectively of the Euclid Fire, shows information from both stations to be nearly identical (Exhibit D), except for wind speed. Duarte showed wind at 5 mph and Temescal showed 12 mph. Weather information taken at Chino Airport just four miles north of the incident showed a relatively steady wind at 20 knots (23 mph) at 1145, 1245 and 1345 hours. Wind at Chino recorded at 1445 hours was 15 knots. Direction of the wind recorded at Chino was 070° at 1245 and 1345 hours.

Using the information from these three stations, the following model was run on the TI-59 calculator Fuel Model #1, 0 shade, 80° dry bulb temperature, 18% relative humidity, 4% for one hour time lag fuels, 7% for 10 hour fuels, 13% for 100 hour fuels, 61% live fuel moisture, 5, 12 and 23 mph winds representing the three stations and 15% slope. The printout (Exhibit D) showed no change in fire behavior between the 12 and 23 mph inputs. At the lowest wind speed, 5 mph, the rate of spread (111 ch/hr. and btu/ft² (96) put the fire above the recommended limits for direct action by hand crews. The rate of spread increases by over 300% to 350 ch/hr. when the wind speed is increased to 12 mph. Although the btu/ft² remains the same due to the light fuel loading, the rate of spread represented in this model gives a good example of how fast fine fuels can react to changes in wind velocities. It is our conclusion that the gusting wind conditions were a major contributing factor to this incident.

Weather data from Chino Airport, 4 miles north of the site showed winds of 20 knots (23 mph) from 070° at about the time of the incident. It is our conclusion that the wind blowing up Abacherli Canyon was being compressed by the narrowing of the canyon and was forced out over the saddle and up the spur ridge causing a near instantaneous flare up at the site. These same weather conditions were experienced by the investigating team when on site the day following the incident, November 1, 1981.

Investigators Turner and Wasley then returned to San Bernardino Ranger Unit Headquarters and photographed Engine 6578, and noted no damage.

Nomex clothing assigned to FAE Smethurst was also photographed at that time and burn holes near the cuff and crotch were noted. However, it could not be established if these burn holes were a result of this incident.

All appeared to be prior burn holes.

Investigation - Derek Smethurst
October 31, 1981
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FAE Smethurst's helmet was obtained and photos also taken. All issued protective gear was with the helmet; goggles, shroud, safety strap, etc. No gloves recovered (All equipment retained in evidence).

In summary, following the injuries, a Unit 6511 was referred to during several occasions. This unit normally assigned to a battalion chief, was being operated by a paid-call fireman. His activity relative to this investigation was only to transport burn victim Smethurst to an ambulance pickup point. Fire Fighter Albertsen was transported via United States Forest Service pickup to the same pickup point shortly afterwards.



E. H. Wasley, Fire Prevention Officer
San Bernardino Ranger Unit

REPORT OF ACCIDENT FACTS

1. Neither unit could actually see the exact fire front.
2. The fuel was very light grass, overgrazed, with no brush present.
3. Engine 6578 was parked about 120 feet above a small saddle and Engine 6580 was parked about 30 feet on the opposite side of the saddle on the same road.
4. There was no damage sustained to either engine. Engine 6580 was clear of the flare-up.
5. Fire Fighter Albertsen was in full protective gear, nomex pants and shirt, helmet, goggles, shroud and gloves.
6. Engineer Smethurst was wearing nomex pants and shirt, helmet with the goggles on top and shroud loose and was carrying his gloves.
7. The Euclid Fire occurred under Santana conditions. Weather reports are included in the exhibits.

OPINIONS AND CONCLUSIONS

1. The assigned objective for Units 6578 and 6580 was to backfire along a section of road and attempt to prevent the approaching fire from crossing that road.

A combination of the following circumstances prevented the plan from being effective plus contributed to the burn incident:

- a. Backfire attempt using fusees in the light fuel was unsuccessful (Alternative would have been drip torch).
 - b. Poor visibility of active fire front.
 - c. Fire overran their location before an alternate plan of action could be decided on and executed. A more defensive location to discuss tactics should have been selected.
 - d. Both Fire Apparatus Engineers on 6578 and 6580 underestimated the rapid flame spread and the potential heat being generated by the fuel type being consumed.
2. Fire occurred under a strong Santa Ana condition in light fuels which often prevent direct attack methods from being effective.

Backfiring along other areas of the fire was successful in the containment of this fire, though spots did occur.
 3. Due to excessive radio traffic, FAE Smethurst could not receive instructions from FAE Kuhn at the scene; therefore, Smethurst left his unit to obtain verbal instructions.
 4. Santa Ana winds blowing through Abacherli Canyon were influenced by the terrain features, causing high velocities over ridges and through depressions. These conditions existed at the site of the incident.
 5. Fire Fighter Albertsen's injuries occurred apparently due to the fact that his shroud was not completely fastened. The remainder of the protective gear was worn properly and possibly prevented further injury.
 6. FAE Smethurst was not wearing gloves and did not have his shroud fastened at the time of the blowup and thereby received serious burns to his face and hands. The remainder of the protective clothing was worn and possibly prevented the injuries from being more serious.
 7. There were no equipment failures or malfunctions related to this incident. Fire blankets were available and operative on Unit 6578, but were not used due to the near instantaneous blowup conditions.

LOCAL WEATHER

Obtained from Aerojet-General Corporation, Chino Hills,
on November 2, 1981 for weather occurring October 31, 1981.

Time recorded - 12:00 noon
Relative humidity - 17%
Temperature - 78°

Wind out of east, 35 to 40 miles per hour.
Wind not recorded, best estimation.

Obtained by E. H. Wasley, FPO
San Bernardino Ranger Unit

WEATHER FROM CHINO AIRPORT

(Approximately 4½ Miles North of Incident)

Saturday, October 31, 1981

<u>TIME</u>	<u>STATUS OF WEATHER</u>	<u>VISIBILITY</u>	<u>WIND DIRECTION</u>	<u>WIND SPEED</u>	<u>BAROMETER</u>
1145	CLEAR	20 MILES	080°	20 KNOTS	30.20
1245	CLEAR	50 MILES	070°	20 KNOTS	30.16
1345	CLEAR	50 MILES	070°	20 KNOTS	30.15
1445	CLEAR	50 MILES	060°	15 KNOTS	30.14

Station Elevation 652'

Information taken from Ed Byrd, Team Supervisor, Chino Airport tower by Investigator Walt Turner on November 1, 1981.

"D."

LOS ANGELES FIRE WEATHER FORECAST 1430 PST SAT OCT 31 1981

SOUTHERN CALIFORNIA

RED FLAG WARNING CONTINUES

A RED FLAG WARNING CONTINUES IN EFFECT FOR THE MOUNTAINS AND COASTAL VALLEYS THROUGH SUNDAY. WARMING AND WEAKENING OF THE SURFACE HIGH OVER NORTHERN UTAH WILL RESULT IN A GRADUAL WEAKENING OF THE STRONG OFFSHORE FLOW. RED FLAG CONDITIONS COULD POSSIBLY BE OVER BY SUNDAY AFTERNOON. HIGH PRESSURE ALOFT WILL PERSIST.

...TONIGHT...

LOWER COASTAL ZONE
UPPER COASTAL ZONE
INTERMEDIATE ZONE
CLEAR. WINDS LOCALLY BELOW PASSES AND SOUTHERN SECTIONS EASTERLY 15 TO 30 MPH. ELSEWHERE LIGHT AND VARIABLE.

MOUNTAIN ZONE
CLEAR. EAST TO NORTHEAST WINDS 20 TO 40 MPH.

DESERT ZONE
CLEAR. WINDS DECREASING TO LIGHT AND VARIABLE BY 2000 PST.

...SUNDAY...

LOWER COASTAL ZONE
UPPER COASTAL ZONE
INTERMEDIATE ZONE
FAIR. VARIABLE WINDS 5 TO 15 MPH LOCALLY EASTERLY TO 25 MPH BELOW PASSES AND SOUTHERN SECTIONS.
TRENDS: TEMP RH LTLCG FUEL MSTR DOWN 1 WIND LIGHTER

MOUNTAIN ZONE
FAIR. EASTERLY WINDS 15 TO 30 MPH DECREASING IN THE AFTERNOON.
TRENDS: TEMP UP 3 RH LTLCG FUEL MSTR DOWN 1 WIND LIGHTER

DESERT ZONE
FAIR. NORTH TO NORTHEAST WINDS 10 TO 20 MPH IN THE AFTERNOON.
TRENDS: TEMP UP 4 RH DOWN 2 FUEL MSTR DOWN 1 WIND LIGHTER

...OUTLOOK MONDAY...

CLEAR. EAST TO NORTHEAST WINDS MOUNTAIN ZONE 12 TO LOCALLY 25 MPH. ELSEWHERE VARIABLE WINDS TO 15 MPH. CONTINUED WARM AND DRY.
STARMER

1.	FM
0.	SHD
80.	DB
18.	RH
4.	1H
7.	10H
13.	100H
61.	LIVE
5.	M WS
15.	PCTS
1.	PT
1.	MS

ENTER SIDE 4

1.	FM
0.	SHD
80.	DB
18.	RH
4.	1H
7.	10H
13.	100H
61.	LIVE
12.	M WS
15.	PCTS
1.	PT
1.	MS

ENTER SIDE 4

1.	FM
0.	SHD
80.	DB
18.	RH
4.	1H
7.	10H
13.	100H
61.	LIVE
23.	M WS
15.	PCTS
1.	PT
1.	MS

ENTER SIDE 4

111.	RDS
96.	H/UA
196.	FI
5.	FL
111.3	SD
1.4	MD
340.	PER
779.	AREA
40.	IC
674.	IR

350.	RDS
96.	H/UA
615.	FI
9.	FL
349.5	SD
4.4	MD
926.	PER
4577.	AREA
71.	IC
874.	IR

350.	RDS
96.	H/UA
615.	FI
9.	FL
349.5	SD
4.4	MD
926.	PER
4577.	AREA
71.	IC
874.	IR

10/31/81--FCST--23:26GMT

STATION	DY	HR	W	DBT	OPT	RH	AL	TL	CIR	WS	IC	TMX	TMN	HMX	HMN	P1	P2
				1300	clear	40-45	100-105	100-105	100-105	Speed	10-15	Max Temp	Min Temp	Max Hum	Min Hum		
IG	1	13	0	74	30	20	1	1		2	6	74	52	42	20	0	0
OSVLY	1	13	0	71	38	29	1	1		8	6	71	50	62	29	0	0
QUARTE	31	13	0	83	35	18	1	1		5	7	83	40	73	18	0	0
LECHUS	31	13	0	82	18	9	1	1		10	6	82	50	28	9	0	0
VINCNT	1	13	0	68	28	22	1	1		36	6	68	43	53	22	0	0
WRMSPR	1	13	0	61	18	19	1	1		53	8	61	48	32	19	0	0
NEWHAL	1	13	0	80	18	10	1	1		22	7	80	62	15	10	0	0
BGBEAR	1	13	0	60	-41	1	1	1		14	7	60	32	3	1	0	0
LYTLCK	1	13	0	71	19	14	1	1		15	6	71	52	27	14	0	0
DEVORE	31	13	0	72	14	11	1	1		7	23	72	48	25	11	0	0
KNWTHY	1	13	0	66	-2	6	1	1		5	7	66	46	13	6	0	0
TEMESC	31	13	0	80	33	18	1	1		12	6	80	45	46	18	0	0
VISTGR	1	13	0	64	-1	7	1	1		5	7	64	45	14	7	0	0
ALPINE	1	13	0	79	-1	4	1	1		18	3	79	57	10	4	0	0
CAMRON	31	13	0	64	0	7	1	1		22	7	64	32	30	7	0	0
OAKGPV	1	13	0	79	57	46	1	1		10	8	79	31	100	46	0	0
PINEHL	1	13	0	66	18	15	1	1		23	7	66	48	27	15	0	0
TENAJA	31	13	0	79	17	9	1	1		9	8	79	34	52	9	0	0

10/31/81--FCST--23:26GMT

STATION	MSGC	DY	WS	WDY	HRB	1H	10	HU	TH	IC	LR	LO	MR	MO	SC	EC	BI	FL	MC	R
IG	B3A2	1	2	65	4	4	6	11	15	46	0	0	99	46	23	61	84	68	3	H
OSVLY	B3A2	1	8	57	5	5	6	12	16	60	0	0	99	59	55	60	125	98	3	H

LOS ANGELES FIRE WEATHER FORECAST 1430 PST SAT OCT 31 1981

QUARTE	B4A2	31	5	61	4	4	7	13	15	73	0	0	20	15	52	61	123	88	5	E
LECHUS	B3A2	31	10	53	2	2	6	10	14	99	0	0	20	20	81	92	182	99	5	E
VINCNT	B3A2	1	36	60	4	4	6	10	11	99	0	0	36	36	223	67	251	99	5	E
WRMSPR	B3A2	1	53	50	4	4	8	8	11	99	0	0	37	37	391	67	324	99	5	E
NEWHAL	B3A2	1	22	58	3	3	7	8	14	99	0	0	37	37	150	77	223	99	5	E
BGBEAR	C3A2	1	14	111	2	2	7	7	14	93	0	0	30	28	30	20	56	44	4	E
LYTLCK	B5A2	1	15	104	3	3	6	10	13	53	0	0	62	33	27	41	76	59	2	M
DEVORE	F4A2	31	7	91	6	6	23	9	12	33	0	0	62	20	11	5	18	19	2	M
KNWTHY	C3A2	1	5	102	2	2	7	6	13	54	0	0	22	12	12	18	36	27	3	H
TEMESC	B3A2	31	12	111	4	4	6	13	14	37	0	0	34	13	14	39	54	39	2	M
VISTGR	C4A2	1	5	85	2	2	7	6	11	68	0	0	22	15	20	19	46	34	3	H
ALPINE	B3A2	1	18	89	1	1	3	7	12	99	0	0	54	54	82	81	173	59	4	E
CAMRON	B2A2	31	22	87	2	2	7	9	11	70	0	0	54	38	41	42	92	71	3	H
OAKGPV	B3A2	1	10	135	7	7	8	17	17	18	0	0	23	4	9	24	36	26	2	L
PINEHL	B3A2	1	23	108	4	4	7	9	14	47	0	0	49	23	25	37	70	52	3	H
TENAJA	B3A2	31	9	125	3	3	8	13	16	35	0	0	33	12	10	34	44	32	2	M

-----10/31/81--FCST--23:26GMT-----

STATION	BY	HR	V	DBT	DPT	RF	AL	TL	DIR	WS	10	TH	TMN	HMN	P1	P2
IC	1	13	0	74	30	20	1	1		2	6	74	52	42	20	0
OS	1	13	0	71	38	29	1	1		8	6	71	50	62	29	0
UARTE	31	13	0	83	35	18	1	1		5	7	83	40	73	18	0
ECHUS	31	13	0	82	18	9	1	1		10	6	82	50	28	9	0
INCNT	1	13	0	68	28	22	1	1		36	6	68	43	53	22	0
RMSPR	1	13	0	61	18	19	1	1		53	8	61	48	32	19	0
EWHAL	1	13	0	80	18	10	1	1		22	7	80	62	15	10	0
GBEAR	1	13	0	60	-41	1	1	1		14	7	60	32	3	1	0
YTLCK	1	13	0	71	19	14	1	1		15	6	71	52	27	14	0
EVORE	31	13	0	72	14	11	1	1		7	23	72	48	25	11	0
NWTHY	1	13	0	66	-2	6	1	1		5	7	66	46	13	6	0
EMESC	31	13	0	80	33	18	1	1		12	6	80	45	46	18	0
ISTGR	1	13	0	64	-1	7	1	1		5	7	64	45	14	7	0
LPINE	1	13	0	79	-1	4	1	1		18	3	79	57	10	4	0
CAMRON	31	13	0	64	0	7	1	1		22	7	64	32	30	7	0
AKGRV	1	13	0	79	57	46	1	1		10	8	79	31	100	46	0
PINEHL	1	13	0	66	18	15	1	1		23	7	66	48	27	15	0
TENAJA	31	13	0	79	17	9	1	1		9	8	79	34	52	9	0

-----10/31/81--FCST--23:26GMT-----

STAT	MSGC	DY	WS	WDY	HRB	1H	10	HU	TH	IC	LR	LO	MR	MO	SC	EC	BI	FL	MC	R
FIG	B3A2	1	2	65	4	4	6	11	15	46	0	0	99	46	23	61	84	68	3	H
ROSVLY	B3A2	1	8	57	5	5	6	12	16	60	0	0	99	59	55	60	125	98	3	H

LOS ANGELES FIRE WEATHER FORECAST 1430 PST SAT OCT 31 1981

DUARTE	B4A2	31	5	61	4	4	7	13	15	73	0	0	20	15	52	61	123	88	5	E
LECHUS	B3A2	31	10	53	2	2	6	10	14	99	0	0	20	20	81	92	182	99	5	E
VINCNT	B3A2	1	36	60	4	4	6	10	11	99	0	0	36	36	223	67	251	99	5	E
WRMSPR	B3A2	1	53	50	4	4	8	8	11	99	0	0	37	37	391	67	324	99	5	E
NEWHAL	B3A2	1	22	58	3	3	7	8	14	99	0	0	37	37	150	77	223	99	5	E
RGBEAR	C3A2	1	14	111	2	2	7	7	14	93	0	0	30	28	30	20	56	44	4	E
LYTLCK	B5A2	1	15	104	3	3	6	10	13	53	0	0	62	33	27	41	76	59	2	M
DEVORE	F4A2	31	7	91	6	6	23	9	12	33	0	0	62	20	11	5	18	19	2	M
KNWTHY	C3A2	1	5	102	2	2	7	6	13	54	0	0	22	12	12	18	36	27	3	H
TEMESC	E3A2	31	12	111	4	4	6	13	14	37	0	0	34	13	14	39	54	39	2	M
VISTGR	C4A2	1	5	85	2	2	7	6	11	68	0	0	22	15	20	19	46	34	3	H
ALPINE	B3A2	1	18	89	1	1	3	7	12	99	0	0	54	54	82	81	173	99	4	E
CAMRON	E2A2	31	22	87	2	2	7	9	11	70	0	0	54	38	41	42	92	71	3	H
AKGRV	B3A2	1	10	135	7	7	8	17	17	18	0	0	23	4	9	24	36	26	2	L
PINEHL	B3A2	1	23	108	4	4	7	9	14	47	0	0	49	23	25	37	70	52	3	H
TENAJA	B3A2	31	9	125	3	3	8	13	16	35	0	0	33	12	10	34	44	32	2	M

LCS ANGELES FIRE WEATHER FORECAST 1430 PST SAT OCT 31 1981

SOUTHERN CALIFORNIA

RED FLAG WARNING CONTINUES

A RED FLAG WARNING CONTINUES IN EFFECT FOR THE MOUNTAINS AND COASTAL VALLEYS THROUGH SUNDAY. WARMING AND WEAKENING OF THE SURFACE HIGH OVER NORTHERN UTAH WILL RESULT IN A GRADUAL WEAKENING OF THE STRONG OFFSHORE FLOW. RED FLAG CONDITIONS COULD POSSIBLY BE OVER BY SUNDAY AFTERNOON. HIGH PRESSURE ALOFT WILL PERSIST.

...TONIGHT...

LOWER COASTAL ZONE

UPPER COASTAL ZONE

INTERMEDIATE ZONE

CLEAR. WINDS LOCALLY BELOW PASSES AND SOUTHERN SECTIONS EASTERLY 15 TO 30 MPH. ELSEWHERE LIGHT AND VARIABLE.

MOUNTAIN ZONE

CLEAR. EAST TO NORTHEAST WINDS 20 TO 40 MPH.

DESERT ZONE

CLEAR. WINDS DECREASING TO LIGHT AND VARIABLE BY 2000 PST.

...SUNDAY...

LOWER COASTAL ZONE

UPPER COASTAL ZONE

INTERMEDIATE ZONE

FAIR. VARIABLE WINDS 5 TO 15 MPH LOCALLY EASTERLY TO 25 MPH BELOW PASSES AND SOUTHERN SECTIONS.

TRENDS: TEMP RH LTLCG FUEL MSTR DOWN 1 WIND LIGHTER

MOUNTAIN ZONE

FAIR. EASTERLY WINDS 15 TO 30 MPH DECREASING IN THE AFTERNOON.

TRENDS: TEMP UP 3 RH LTLCG FUEL MSTR DOWN 1 WIND LIGHTER

DESERT ZONE

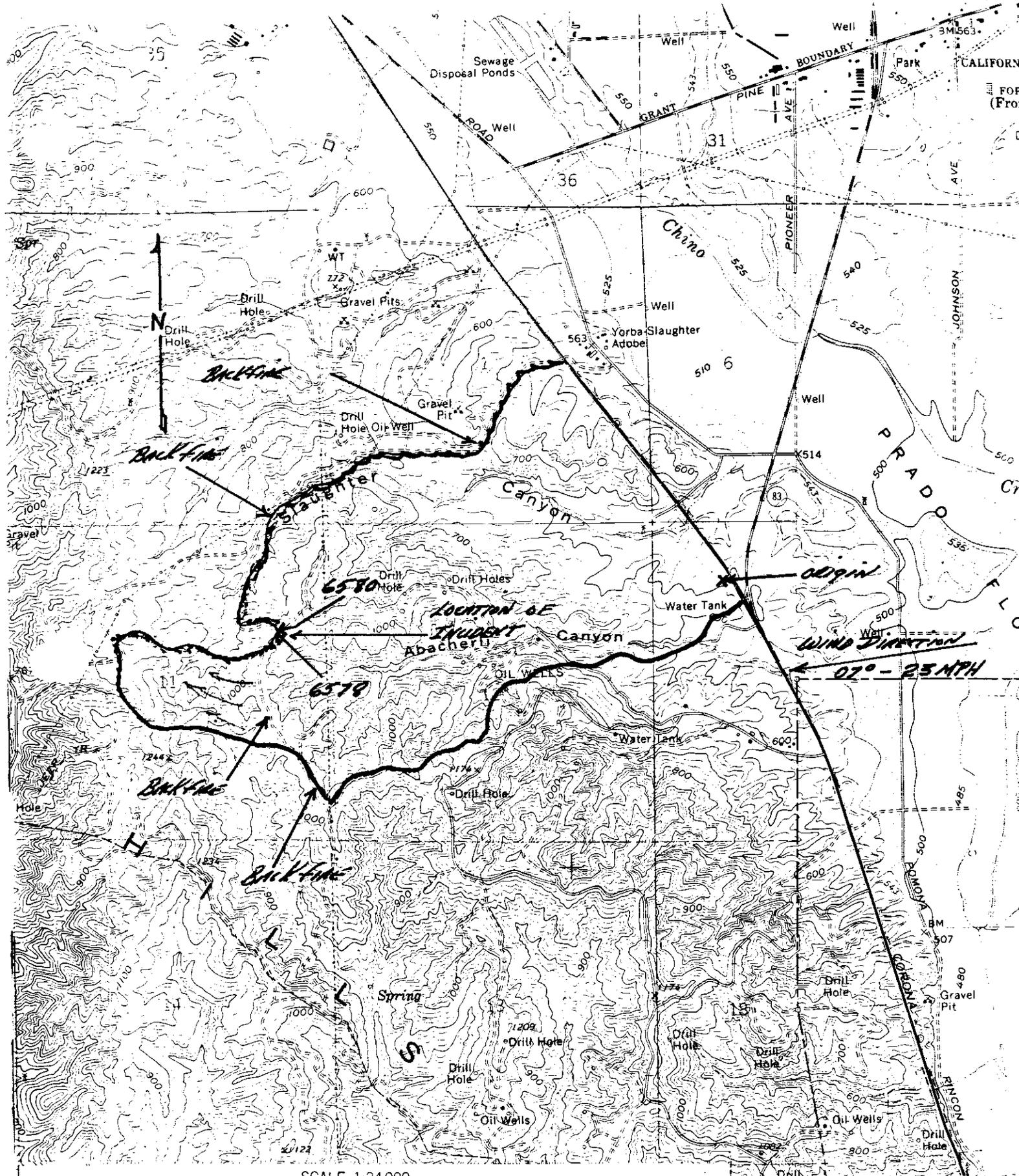
FAIR. NORTH TO NORTHEAST WINDS 10 TO 20 MPH IN THE AFTERNOON.

TRENDS: TEMP UP 4 RH DOWN 2 FUEL MSTR DOWN 1 WIND LIGHTER

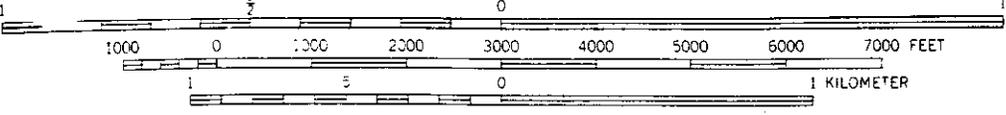
...OUTLOOK MONDAY...

CLEAR. EAST TO NORTHEAST WINDS MOUNTAIN ZONE 12 TO LOCALLY 25 MPH. ELSEWHERE VARIABLE WINDS TO 15 MPH. CONTINUED WARM AND DRY.

STARMER



SCALE 1:24000



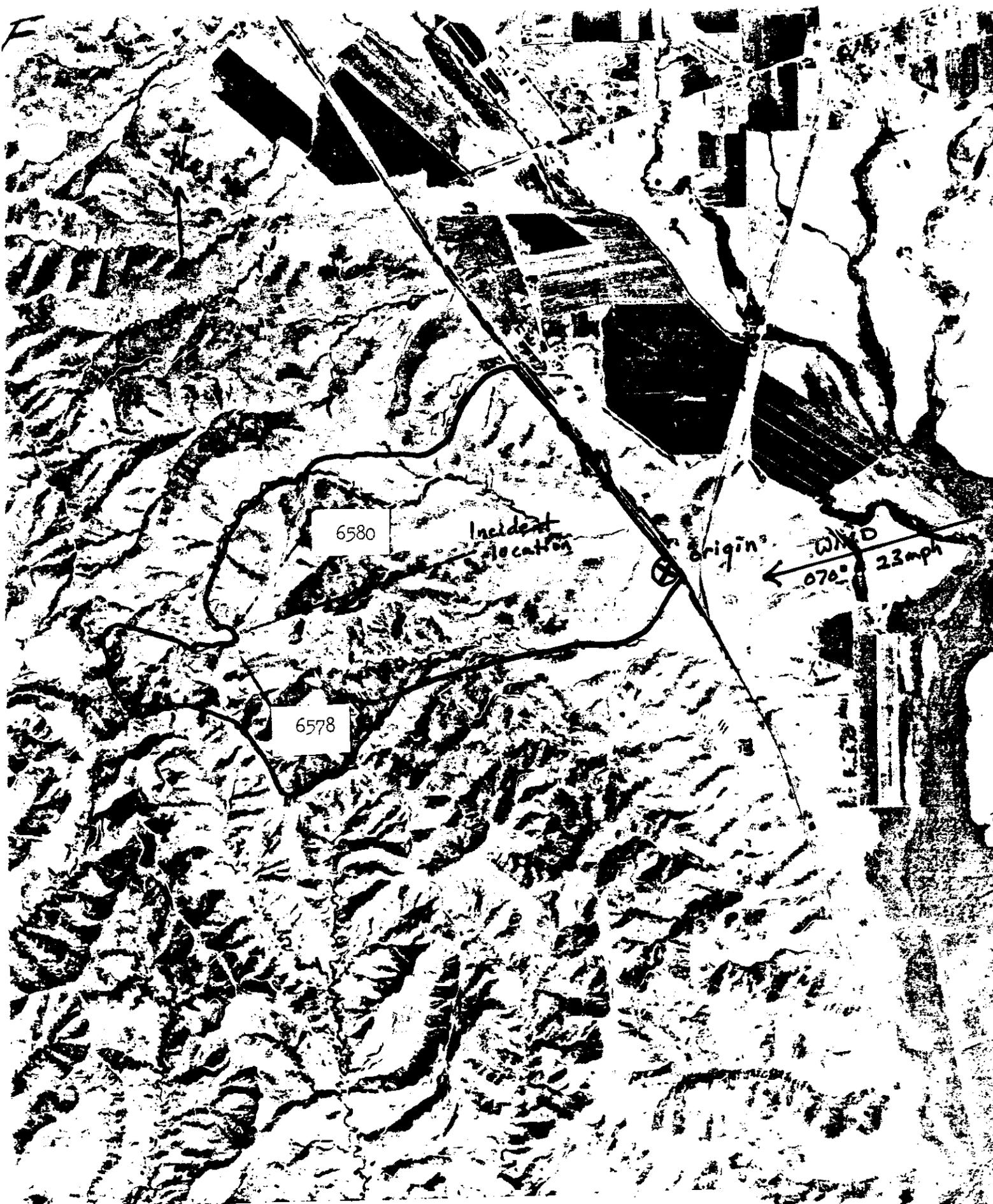
CONTOUR INTERVAL 25 FEET

DOTTED LINES REPRESENT 5 FOOT CONTOURS

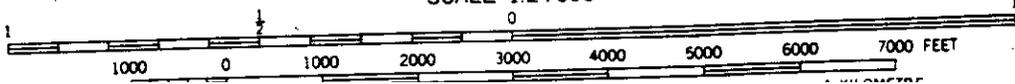
PRADO DAM, CALIF

N3352.5—W11737.5/7.5

1967
PHOTOREVISED 1973



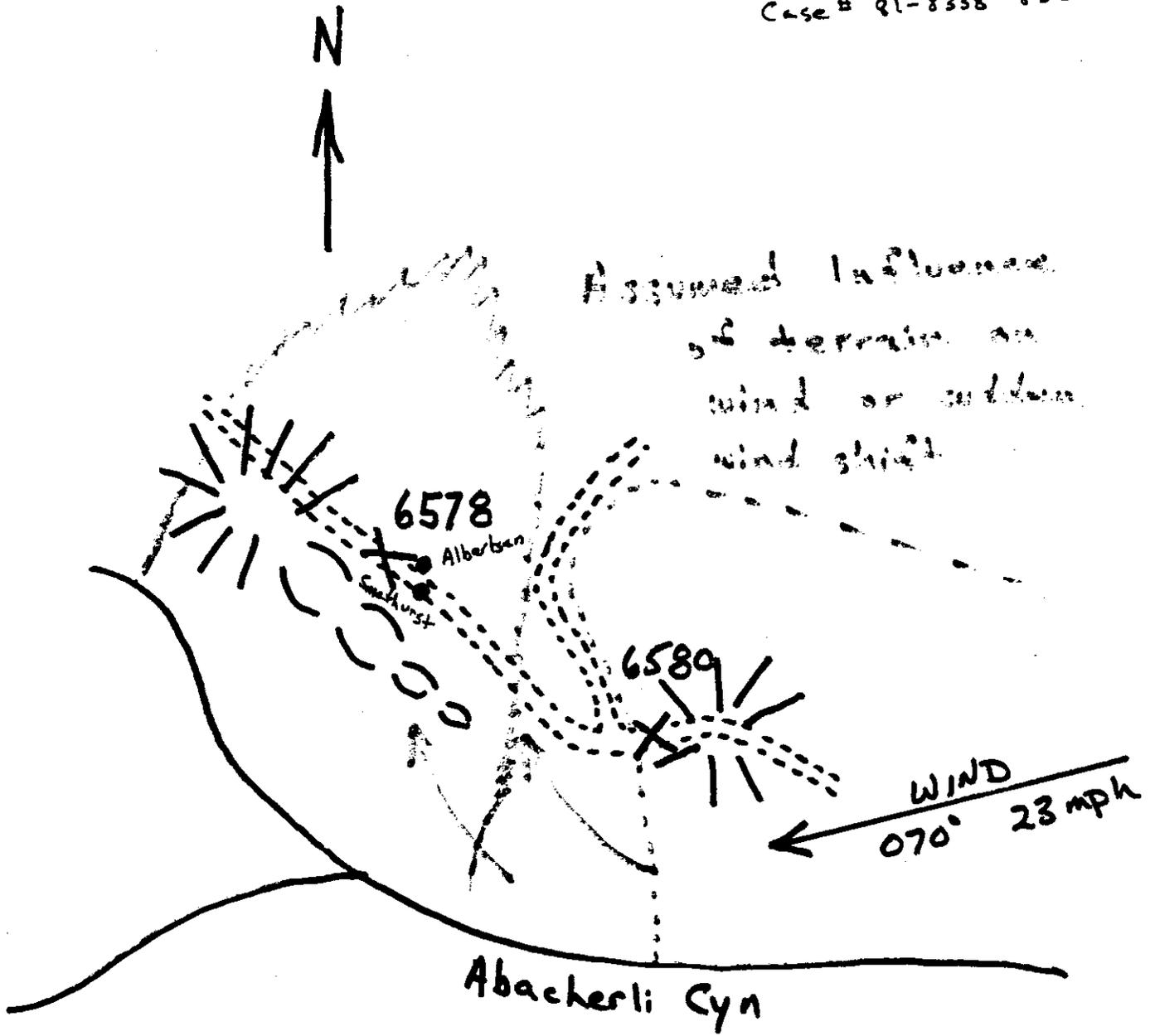
SCALE 1:24000



1 MILE

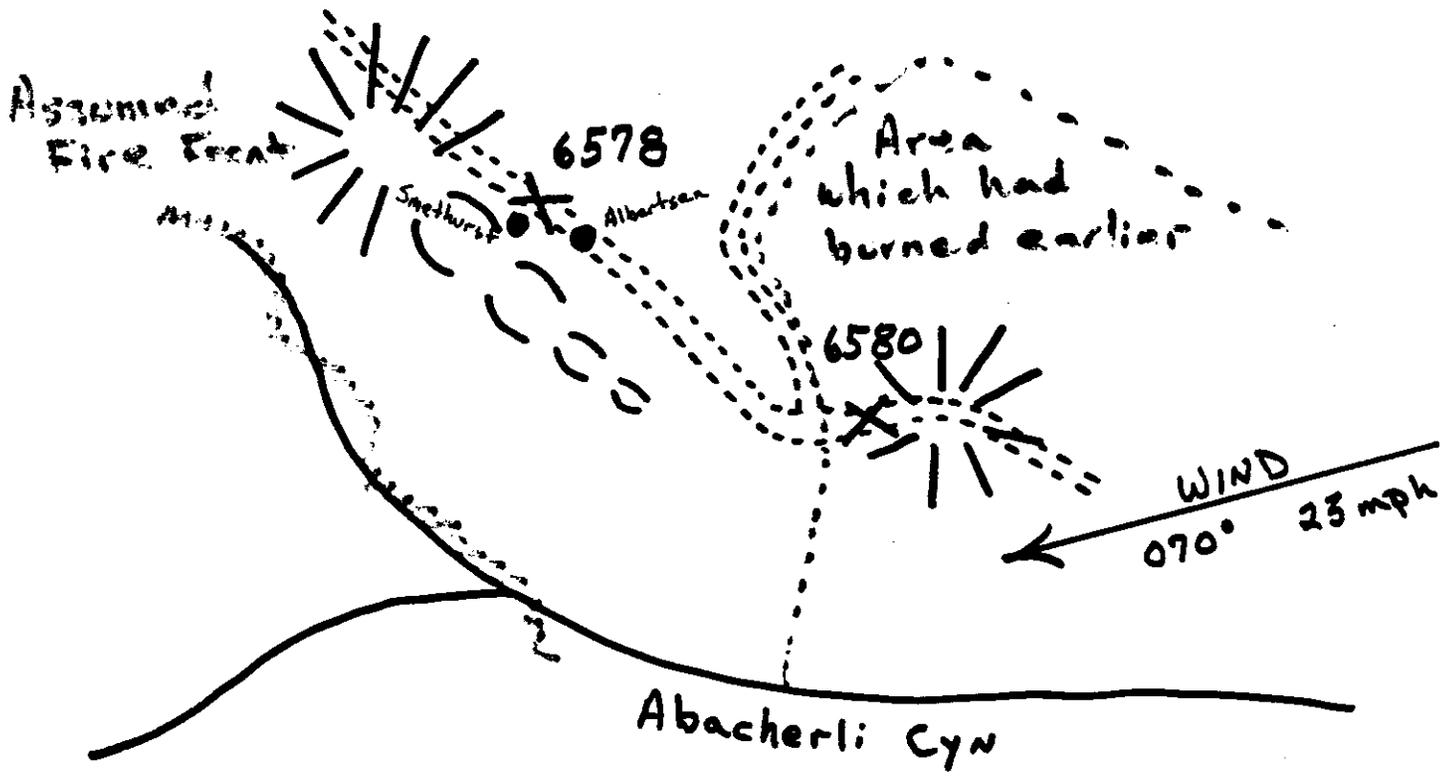
PRADO DAM, CALIF.
N3352.5-W11737.5/7.5

San Bernardino Ranger Unit
Case # 81-8338-8339



Sketch by

San Bernardino Ranger Unit
Case # 81-8338-8339



Euclid Burn Incident
10/31/81
San Bernardino County

Sketch by
Walt Turner

(2) SAFETY GOGGLES--EYE PROTECTION

All personnel will wear goggles while traveling in open trucks and when engaged in fire suppression activities where there is a possibility of airborne or flying particles entering the eyes. Supervisors have the authority to discontinue the use of goggles in those situations where continued use constitutes a greater safety hazard.

Goggles must meet all current standards to be acceptable for use. A list of approved goggles will be published periodically by the Safety Coordinator of the Department of Forestry.

Contact lenses may not be used in lieu of prescription eyeglasses. (See 5607.3c.(11))

(4) NOMEX HOODS

All personnel will wear Nomex Hoods attached to their safety helmets for ready use during severe exposure or blowup conditions. (See footnote 2/ 5607.3b).

2/ Where nomex hoods have been received, they shall be worn.

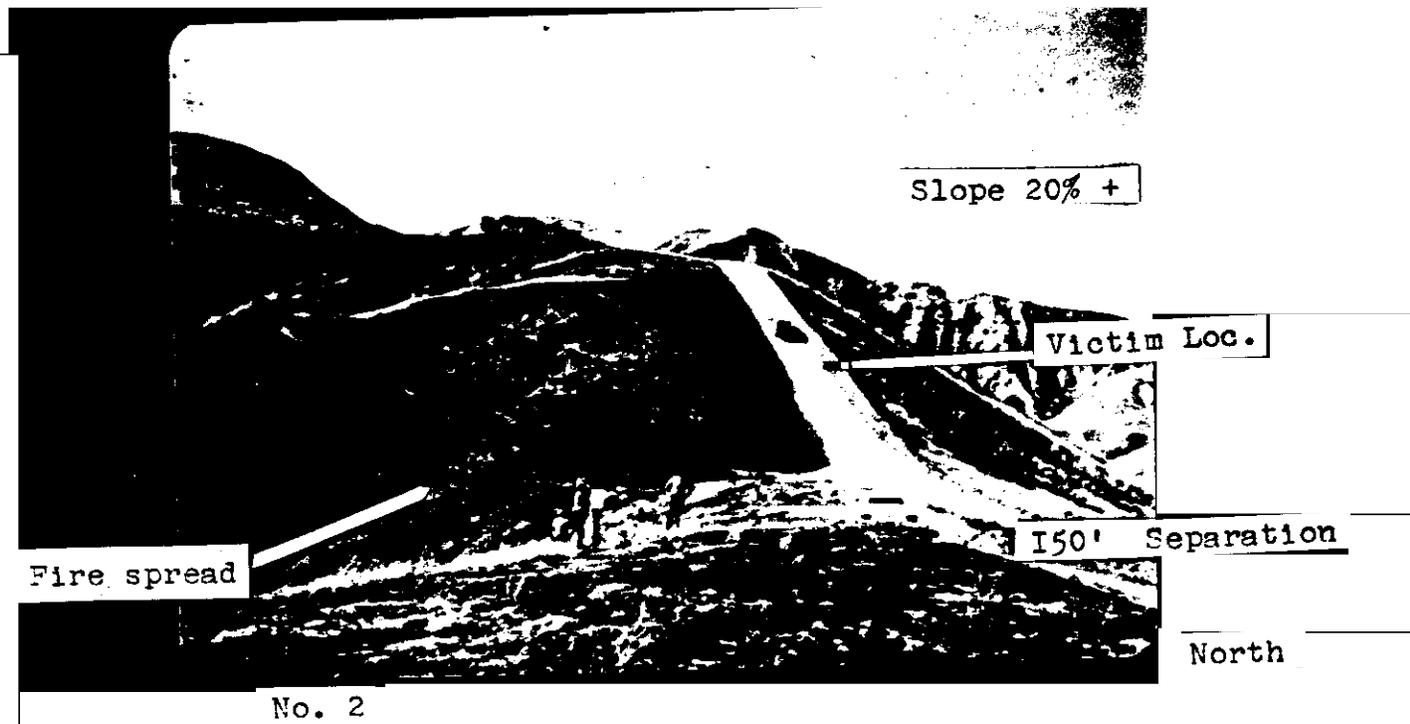
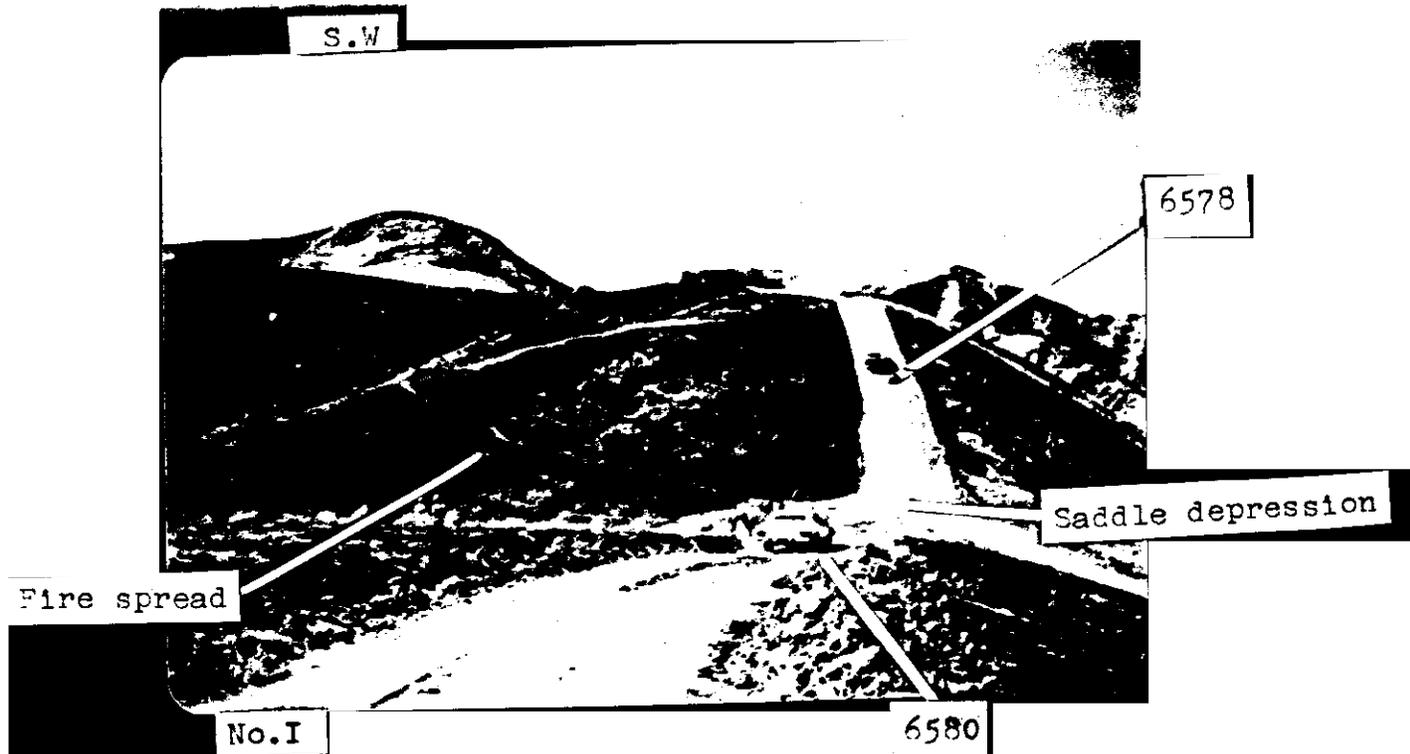
(6) GLOVES

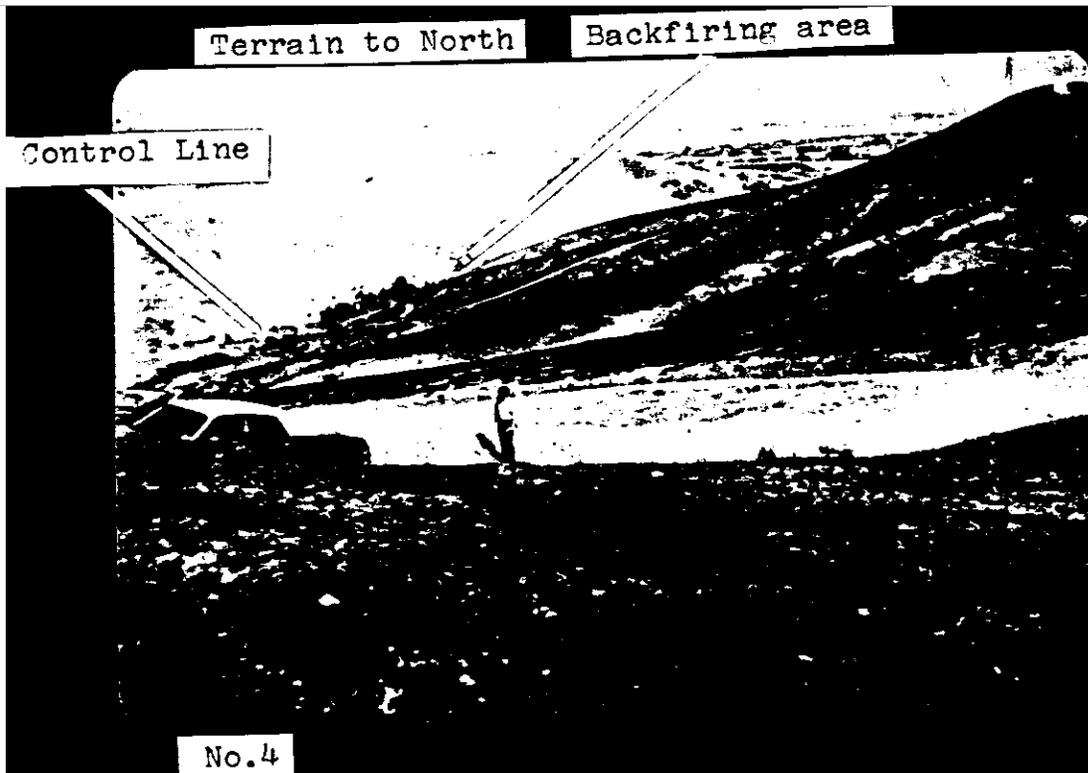
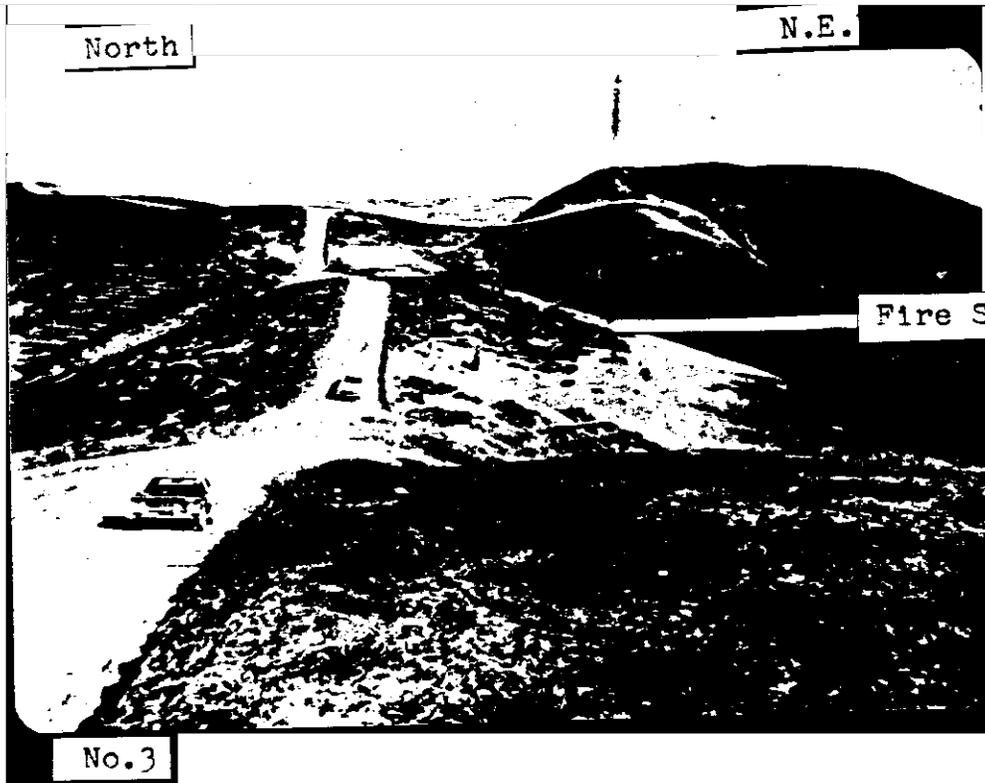
All personnel will wear leather gloves while engaged in wildland fire suppression activities. Gloves for structural fire suppression activities may be either leather, moisture proof, or vapor proof depending upon local need.

Supervisors have the authority to discontinue the use of gloves in those situations where continued use constitutes a greater safety hazard. The combination of gloves with fire retardant on them and swinging hand tools such as an ax can be dangerous.

PHOTOGRAPH INDEX

- Number 1 - Primary vehicle location
Green vehicle location 6578, southwest
White vehicle location 6580, southeast
Direction of fire spread
Saddle depression
- Number 2 - Approximate victim location when accident occurred
Slope 20% plus
Direction of fire spread
Vehicle separation approximately 150 apart
- Number 3 - North - northeast
Fire spread direction
- Number 4 - Terrain to north - northeast
Controlled fire line
Backfiring area
- Number 5 - Type of fuel, unburned
- Number 6 - Type and height of fuel, 12" to 18"
- Number 7 - Overall view of unit 6578
Side against the fire no damage
- Number 8 - No heat damage to plastic lense
side against the fire
- Number 9 - Fire blankets provided both sides
Small burned spot on rolled hose
- Number 10 - FAE Smethurst's nomex pants
Small burn holes observed
- Number 11 - Additional burn holes; all burn
holes observed appeared old and may
not have been caused by present incident
- Number 12 - Nomex shirt; no burn areas observed
- Number 13 - Helmet complete with goggles, chin strap
and shroud







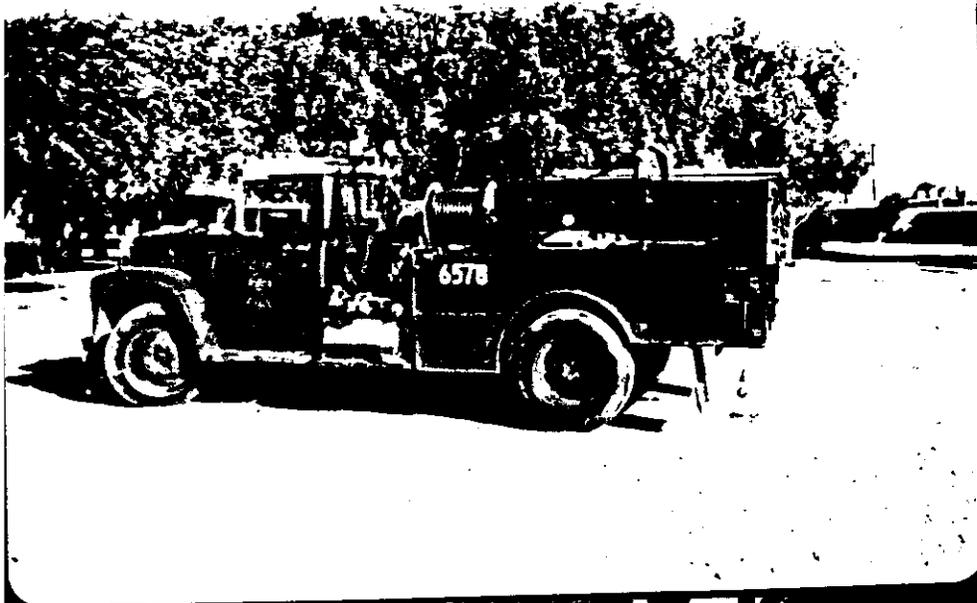
No.5

Unburnt Fuel



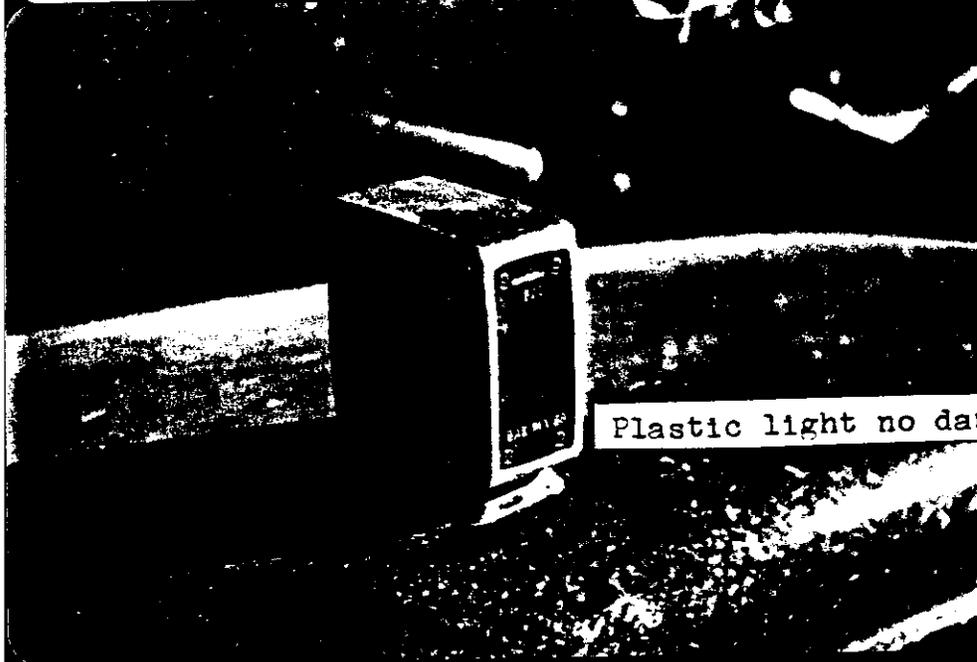
No.6

Fuel Type 12"-18"



No. 7

No damage



No. 8

Plastic light no damage



No. 9

Fire blanket

Small burned spot



Cut away Nomex pant leg.
Small burn holes may be
old from another incident



No.11

Nomex Pants left leg
small holes burns



No.12

Cut away nomex shirt
no apparent fire
damage noted.

No. 13

Helmet Complete

