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I. EVALUATION TEAM- SHELLEY FIRE SHELTER DEPLOYMENT

On June 24, 1989, upon learning of a fire shelter deployment incident on the Shelley Fire, Supervisor Dahl organized an evaluation team. The team is made up of a cross section of Regional personnel consisting of:

Toby Martinez Jack Wade Dan Winner	Team Leader Member Member	R&W Staff, Gila N.F. Apache Sitgreaves N.F. Aviation & FM, Regional Office Albuquerque, N.M AFMO, Santa Fe, N.F. BIA, FMO, Phoenix Area Office
Les Buchanan Henry Rawlins	Member Member	

Objectives of the team were to gather facts, analyze information, and make recommendations to assist in minimizing the potential for the reoccurrence of similar incidents.

II. THE INCIDENT

At approximately 1230 MDT, June 24, 1989, the Shelley Fire crossed control lines and made a major run parallel to Division D, resulting in the deployment of 41 fire shelters.

III. CHRONOLOGICAL STATEMENT OF EVENTS LEADING UP TO DEPLOYMENT

The Shelley fire was reported to the Forest Dispatcher on 6/16/89 at 1857. It was started by lightning. The Gila National Forest had 38 fires reported on 6/16 and over 70 in two days. The fire was not seen again until 1146 on 6/18. Aerial reconnaissance at 1151 reported the fire to be 6-7 acres with 3 fronts in sparse fuels. Jumpers were ordered for initial attack but could not jump. The first initial attack on the fire was on 6/18/89 at 1353 with four persons in the helicopter. At 1359, the fire was 15-20 acres in size. At 1604, the fire was 35-40 acres and retardant was ordered. There were at least 13 helitack on the fire that night. A Class II Incident Command Team was ordered for the fire at 1950 on 6/19. The first 209 Escaped Fire Analysis prepared on 6/20 showed the fire to be 1,524 acres. The fire burning period map in the appendix shows the fire progression. The fire was 2800 acres by 6/21. A Class I team was ordered for the fire on 6/22 and shadowed the Class II team for two shifts. The Class I team took over direct operation of the fire on the night shift of 6/23.

The escaped fire situation analysis was revised on 6/22 and contained three alternative suppression perimeters. The alternative that was chosen was the furthest east control line on a ridge between Snow Creek and Corral Canyon. The southern control line was along the wilderness boundary on Goose Lake Ridge. The control line was in place on 6/23. A burnout along the control line was planned that started late in the

day on 6/23 in the southeast corner of the fire. The burnout was to progress to the north in Division E during the day shift on 6/24. The fire had been moving to the east. The objective was to keep the fire from moving to the east and pinch it off to the north into the Gila River Canyon. The winds were predicted to be from the southeast switching to the southwest later in the day. The objective for Division D was to continue to support the burnout to the west. Seven crews and two skidders were assigned to Division D on 6/24. Two crews were transferred to Division C (Questa 8 and Mora 1). The personnel working on Division D consisted of Division Supervisor Moreland; Safety Officer Smay; Task Force Leader and Trainee Shepard and Steele; Sacramento and Alpine Hotshots, San Carlos 67 and 68, and El Rita 7.

The fireline in Division D consisted mostly of dozer line. The five crews were deployed along the division from west to east (El Rita 7, Sacramento Hotshots, San Carlos 67, San Carlos 68, Alpine Hotshots). Air attack had to leave the area around 1200 hours and had informed Division D that the fire in Johnson Canyon was no problem. A Strike Team Leader (J.D. Killick), with Mora 1 in Division C, alerted El Rita 7 that the fire was active in Johnson Canyon which came up to a saddle near the break between Divisions C and D. Shortly after this, the El Rita crew crossed back into Division C toward H-5 into a safety zone. The fire had crossed the fireline by 1223 when Division C notified Snow Creek spike camp. The Sacramento Hotshot Crew came back to the division boundary and was advised by Division C that they could not come to the south to H-5. The fire started to make a major run to the east parallel to the fireline in Division D to the south of the dozer line.

The Division Supervisor and Safety Officer joined the Sacramento Hotshot crew near the division break sometime after 1230. The fire was observed moving to the east. At this time, a discussion took place about trying to build line to pinch the fire off. The Sacramento Hotshot Superintendent decided it was not safe to try and construct line at that time. Safety Officer Smay concurred. By this time, San Carlos 67 was slightly east of the safety zone, in the middle of Division D. The fire kept spotting and moving east. The Safety Officer and the Sacramento Hotshot crew were joined shortly after 1300 by Information Officer Turner and photographer Erickson, who had been taking photographs. The group had worked their way back to the safety zone by 1320. Division Group Supervisor and San Carlos 67 were at the zone, and both crews worked to clear the zone in case of the need to deploy fire shelters. The fire was to the south of the safety zone and moved on east of their position.

The two crews further east on the division moved to the east and found an escape route into the black (Alpine Hotshots and San Carlos 68). One member of the Alpine Hotshot crew, who was a lookout and scout, was with the group in the safety zone. The forty-one individuals in the safety zone prepared to deploy their fire shelters as the fire started to make a topographic run to the north to the top of the ridge where the safety zone was located. This was accomplished 3-5 minutes prior to the flames reaching the safety zone. Everyone was ready to deploy and 41 individuals deployed at 1342-1345. The division supervisor had a radio transmission at 1345 with air attack

giving a brief description of the situation stating that they were going to have to deploy (see Appendix F). It is uncertain when air attack arrived back over the fire from refueling. The individuals involved in the deployment are as follows:

Division Supervisor - Moreland
Safety Officer - Smay
Task Force Leader - (T) Steele
Public Information Officer -Turner
Photographer - Erickson
One Crewman - Alpine Hotshots
Nineteen - San Carlos 67
Sixteen - Sacramento Hotshots

The individuals were in their fire shelters for about one hour until 1440. A call was made to dispatch the EMT's from H-5 for a smoke inhalation injury at 1511. The injured San Carlos crewperson had trouble breathing. He was able to start to walk toward H-5 and was met by EMT's with Oxygen about half way to H-5. He was later medivaced to Silver City for medical treatment. The individuals involved in the deployment left their used fire shelters in the safety zone and walked back to the spike camp without shelters. The division supervisor sent the Alpine Hotshot crew ahead to scout the safety of the fireline to make sure it was safe to traverse. There were 6 members of the Sacramento Hotshot crew that suffered from chest pains and discomfort at spike camp.

IV. **COMMENDATIONS**

1. Safety zones were constructed and everyone knew where they were located.
2. Both crews tried to reduce slash from safety zone immediately prior to fire hitting zone.
3. Good communications between divisions and crews.
4. Division Group Supervisor Dave Moreland knew where crews were.
5. Alpine Hotshots and San Carlos 68 were east of safety zone, and went into black and did not deploy shelters.
6. Sacramento Crew Boss James Villard refused to build line downhill into fire. Safety Officer concurred.

7. Safety Officer Chuck Smay was on division and at safety zone.
8. Safety Officer Chuck Smay briefed crews before deployment.
9. J.D. Killick, Strike Team Leader on Division C, took positive action and warned El Rita #7 to retreat to safety zones, and informed Sacramento Hotshots that they did not have time to make safety zone to the west of crew.
10. Division Group Supervisor maintained excellent control of men.
11. Sacramento Crew Boss had Alpine Hotshots walk line and declare it safe before returning to Helispot #5.
12. Crews deployed shelters properly.
13. Fire behavior forecast accurately predicted fire intensity, erratic fire behavior, and spotting distance.
14. Safety Chief Jerry Deiter was very cooperative and helpful in assisting team gather information.
15. Transition between Class I and Class II teams was very smooth.
16. Division Group Supervisor Jeff Whitney, Division C, took proper suppression action during critical situation.

V. ANALYSIS OF DEPLOYMENT

1. Safety zone was too small.
2. Spacing of two safety zones was too far apart.
3. Excessive slash was piled adjacent to safety zone.
4. All other safety zones were designed too small.
5. No lookout was posted at critical points.
6. Ground forces were depending on air attack for lookout.

7. Air attack left scene to refuel, prior to fire crossing fireline.
8. No overlap of air attack.
9. Wind direction was erratic.
10. Wind direction was more unpredictable than what was predicted. Wind speed and direction were difficult to predict as fire was between two pressure systems.
11. Availability of shelters appears to have influenced a delay in decision to consider other options of safety.
12. Three crews on division did not deploy shelters. One crew escaped to the west. Two crews were able to retreat into a black (burned) area to the east 200 yards from safety zone.
13. At 1337, Superintendent Mattingly alerted Division Group Supervisor Moreland that they were going into safety zone in black area.
14. Duration in shelters was 50-60 minutes.
15. Safety zone was hit by three separate fire fronts.
16. Fifteen to twenty minutes prior to fire hitting safety zone, an attempt was made to clear area.
17. All individuals were in injury threatening situations while in safety zone.
18. One (smoke inhalation) injury was air evacuated.
19. No clear verbal order to deploy was given by Division Supervisor or Safety Officer.
20. Crew bosses gave order to crews to deploy.
21. . Six Sacramento Hotshots had chest pains from smoke.
22. Left Shelters on site.
23. Shelters were deployed properly.
24. Shelters functioned properly.
25. All line overhead in Division D were Red Card qualified for positions they were working.

26. Sacramento Hotshot Crew had worked 17 straight days.
27. Division 0 Group Supervisor did not convey seriousness of the deployment.
28. IC Team did not investigate the situation; Identify crews, air evacuation, etc.
29. Both crews felt that the IC Team was more worried about the fire than their welfare.
30. Alternative escape routes were not evaluated in time. Burned out area within 30 yards of safety zone.
31. One flagged safety zone was not built.
32. Pretreatment of safety zone with retardant was not done.
33. Forty-one people deployed.
34. The fire spread was parallel to the fireline in Division D.
35. Sacramento Hotshot crew superintendent was released for emergency and replaced by acting superintendent who is a squad boss.
36. No burnout from safety zone was attempted.
37. On June 25, Safety Officer Smay advised crews not to use burn out areas as safety zones.

VI. **EVALUATION TEAM'S OBSERVATIONS OF FACTORS THAT LED TO DEPLOYMENT**

A. . OPERATIONS

1. Shelters and safety zones were available which gave a false sense of security.
- * 2. The absence of a lookout started chain reaction which eliminated escape alternatives.
- ** 3. No air attack overlap occurred, even though fixed wing air attack was available at Silver City.
4. Information from air attack prior to refueling indicated the conditions were not too serious.

- ** 5. Stayed in area for 60 minutes (too long). Considered trying to pick-up fire.
- ** 6. Active fire on south, west and east of safety zone.
- ** 7. Unburned canopy immediately north of safety zone.
- ** 8. Small safety zone (90' X 130').
- 9. Slash and debris piled on the outer edge of safety zone on all sides.
- * Complete violation of Fire Fighting Orders
- ** Partial violation of Fire Fighting Orders

B. PLANS

- 1. Unpredictable weather situation was not reflected. Shift plan read in spike camp individually with no verbal briefing.
- 2. Johnson Canyon not specifically listed in fire behavior forecast as a hazard area because of it being a natural chute up to the line.

C. SAFETY

- 1. Safety plan concentrated on vehicle transport.

VII. POST DEPLOYMENT FOLLOW-UP ACTIONS

- 1. Crews involved worked the next day shift, and were not taken to base camp.
- 2. No one debriefed the participants in spike camp.
- 3. IC Team did not provide timely correction of information on the deployment.
- 4. Limited medical treatment available in spike camp. EMT's rendered decisions for which they are not qualified.

5. Human resource specialist did not make contact with persons involved.
6. Early news release had inaccurate information.

VIII. CONCLUSIONS AND RECOMMENDATIONS

CONCLUSION 1:

The personnel involved in the deployment were not immediately removed from the fireline or debriefed.

RECOMMENDATION:

1. Personnel involved in any shelter deployment will be immediately removed from the fireline for debriefing and/or follow-up medical treatment and/or counseling.
2. An interagency decision should be considered to send an interagency resource representative (IARR) to SW area incidents.
3. All southwest area incident teams receive delayed stress syndrome training.

CONCLUSION 2:

Due to information received by the Incident Team, the seriousness of the deployment was not recognized.

RECOMMENDATION:

Establish processes for immediate on-site evaluation. Evaluation Team will include one member from the IC Team and the Evaluation Team. Evaluation Team will be required for all deployment incidents.

CONCLUSION 3:

Identity of all personnel involved was not accurately or timely transmitted to all agencies.

RECOMMENDATION :

Incident Team notify SWCC, as soon as possible, with the identity and condition of all personnel involved in a deployment.

CONCLUSION 4:

Safety zone was too small.

RECOMMENDATION:

Develop minimum standards for safety zones that are safe in the appropriate fuel type, without shelter use. This standard should be developed by one of the following: NWCG, SWFCO, MEDC, Research.

CONCLUSION 5:

Negative attitude towards fire shelter deployment has created a reluctance to deploy shelters even in life threatening or injury situations.

RECOMMENDATION:

Develop understanding that deployment of fire shelters for the prevention of injury from heat and/or smoke inhalation is appropriate.

CONCLUSION 6:

The security of having a fire shelter and a safety zone created a situation where other alternatives were not considered sooner. This is further encouraged by fire order number 7 which seems to emphasize safety zones ahead of escape routes.

RECOMMENDATION:

Revise standard fire order to say, "Have escape routes for everyone and make them known".

CONCLUSION 7:

Used fire shelters were left in the safety zone. Forty-one personnel walked 1 1/2 miles of fireline and spent time in a spike camp without protection.

RECOMMENDATION:

Keep used fire shelters until a new one is received. Used shelters should be saved for evaluation purposes.

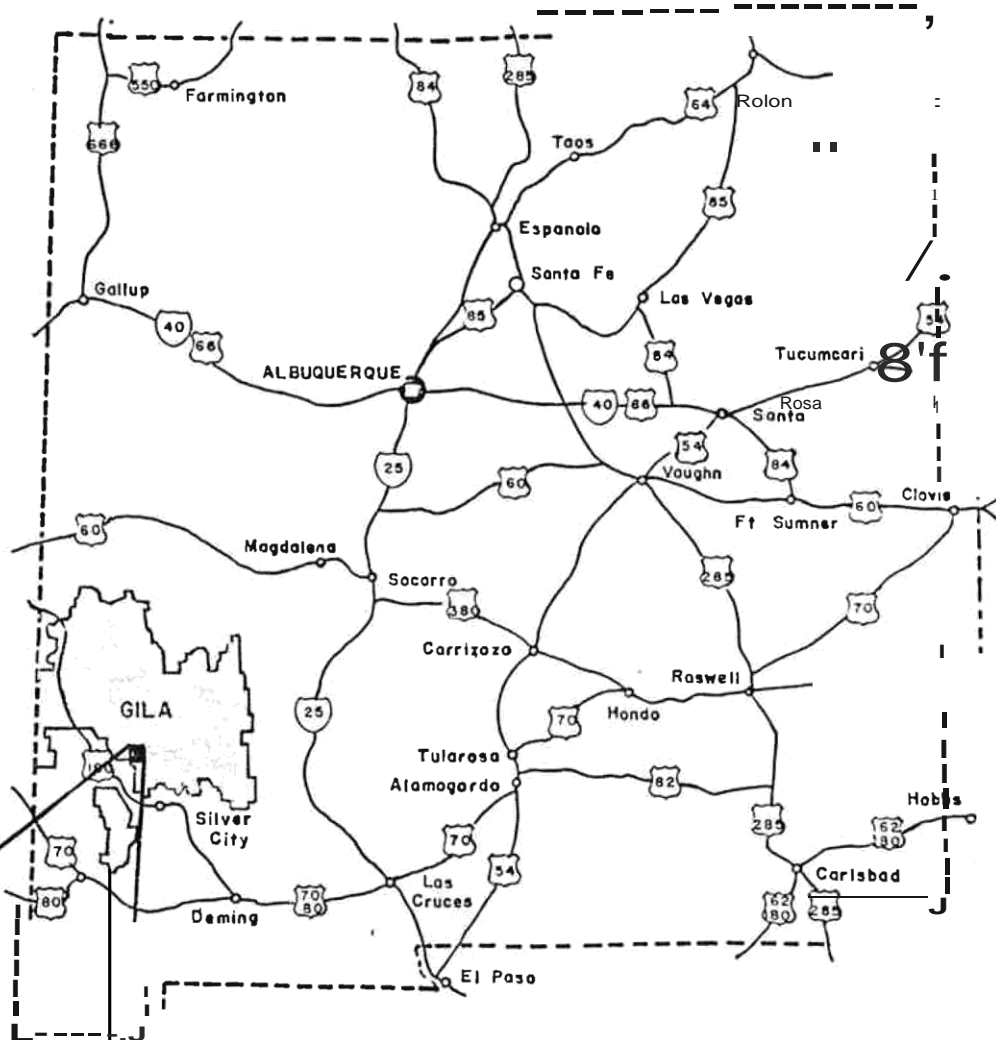
CONCLUSION 8:

Personnel in spike camps did not have the opportunity to hear what was discussed at team briefings.

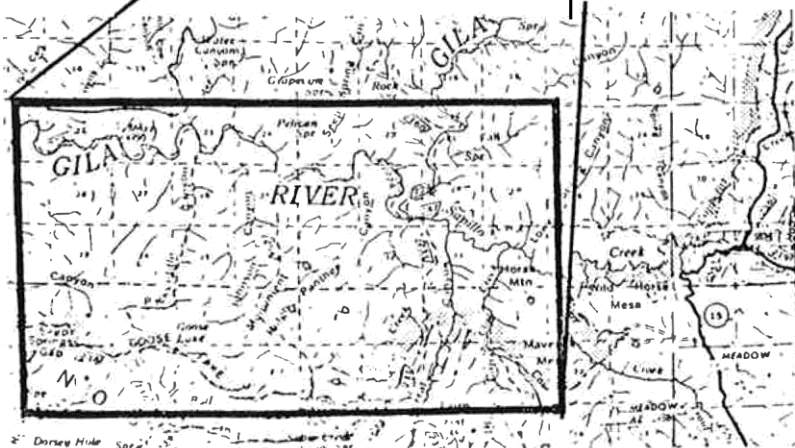
RECOMMENDATION:

Shift plans for spike camps need to give more detailed information on safety, division work assignment, fire behavior, fire weather forecasts, and IC comments and other information normally covered in briefings.

APPENDIX A
GENERAL LOCATION MAP



RI5W

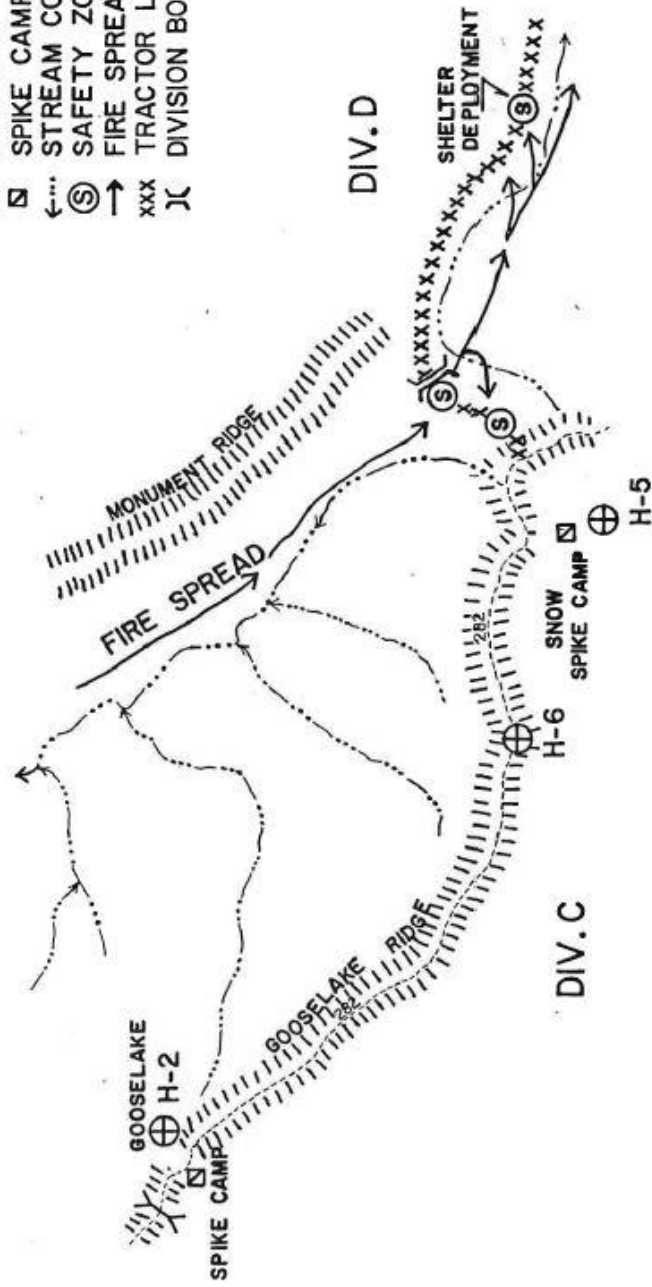


T16S

APPENDIX B

DIVISION D SKETCH

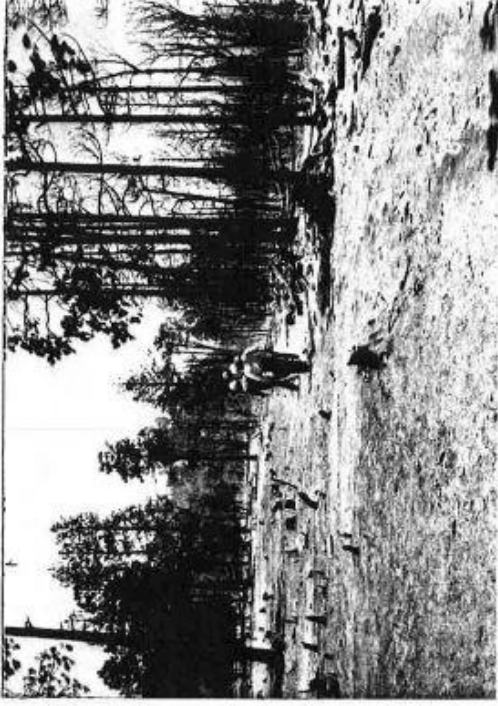
RIDGE
 HELIPORT
 SPIKE CAMP
 STREAM COURSE
 SAFETY ZONES
 FIRE SPREAD
 TRACTOR LINE
 DIVISION BOUNDARY



APPENDIX C
SELECTED PHOTOS



Slash on South Side of Safety Zone



Slash on South Side of Safety Zone



Slash on South Side of Safety Zone



Slash on North Side of Safety Zone



Melted Sling net at SouthWest Corner of Safety Zone



Fire Shelter with Scorch Marks

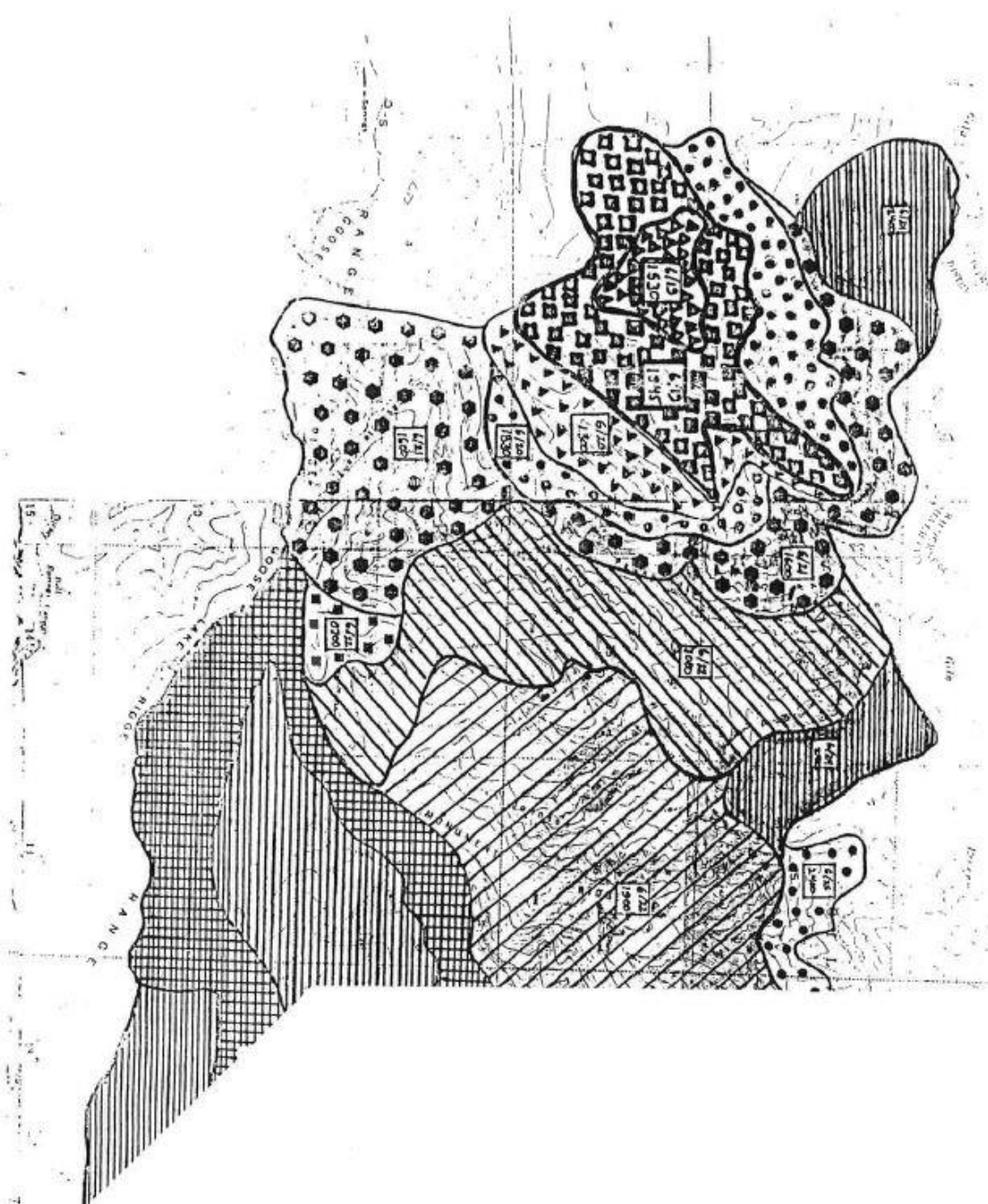


Burned M.R.E. Rations on South Side of Safety Zone



Partially Melted Cube Container on SouthEast Corner Adjacent to where Shelter was Deployed

APPENDIX D
FIRE PROGRESS MAP



APPENDIX E

LIST OF PERSONS INTERVIEWED

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1. Roy Carson	Incident Commander
2. Jerry Deiter	Safety Chief
3. Dave Moreland	Division Group Supervisor
4. Chuck Smay	Division D, Safety Officer
5. Jim Turner	Public Information Officer
6. Dale Douglas	Crew Representative, El Rita #7
7. Ron Bradsby	Fire Behavior Analyst
8. Bob Berkowitz	Fire Weather Forecaster
9. James Villard	Superintendent, Sacramento Hotshots
10. Kimsey Goode	Crew Representative, San Carlos #67
11. George Gibbons	Human Resource Specialist
12. Traci Randall	Radio Operator
13. Mark Erickson	Public Information Officer
14. Jim Mattingly	Superintendent, Alpine Hotshots