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BUREAU OF LAND MANAGEMENT
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Memorandum

To: State Director, Nevada

From: Associate State Director, Idaho

Subject: Fish Fire Deployment Investigation Report

Attached is the final Fish Fire Deployment Investigation Report. An electronic version of this report has also been provided to Kevin Hull.

This deployment occurred under the jurisdiction of the Carson City Field Office on August 10, 2001. Deployment of the two shelters was a direct result of a large fire whirl which traveled through a designated safety zone.

Following an in-briefing in the Nevada State Office, the team began the investigation and after several days determined this deployment was not an entrapment. The report explains how this unusual event happened, with identified escape routes and safety zones.

Although there were no injuries reported, the Investigation Team discovered several issues related to fire behavior, shift lengths and pre-season meetings. Findings and recommendations related to the investigation are included in the report.

This investigation was conducted for the Nevada State Office under their delegation of authority. Therefore, your office will be responsible for distribution of the report to appropriate offices and agencies.

Please pass on the Investigation Team's appreciation to Kevin Hull and his staff for their support and cooperation in completing this report.

If you have any questions, please call me at (208) 373-4001 or by e-mail.

Michael A. Ferguson

Attachment (25 pp)

Fish Fire Deployment Investigation Report

August 10, 2001
Bureau of Land Management
Carson City Field Office
Carson City, Nevada

Fish Fire Investigation Team

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Executive Summary

At about 11:20 p.m. on August 10, 2001, two firefighters from Tahoe National Forest Engine 32 deployed their fire shelters on the Fish fire when a large fire whirl approached them. The Fish fire was under the jurisdiction of the Bureau of Land Management (BLM), Carson City District.

The Nevada BLM State Director assembled a team to determine the factors that led to the deployment of two fire shelters. This is the investigation team's final report.

The investigation team based its findings on interviews with involved personnel, on-site observations, and technical analysis of factors including weather, climate, and fire behavior.

The investigation team concluded that the observed fire behavior was a result of the extreme condition of the fuels in the area. The team also found several incident management issues including:

- Lack of clear direction and no information on the overall management objectives caused uncertainty about the course of action to take to secure the green area next to the structure.
- Firefighters were disagreed on which part of the fire was the top priority.
- Safety zones and escape routes had been identified and communicated to crews.
- Firefighters were given clear instructions to move to the safety zones.
- Firefighters using escape routes to identified safety zones passed within 30 feet of the two deployed fire shelters.

The team recommended that all safety zones and escaped routes be identified to all firefighters and overhead.

Investigation Process

An investigation team was assembled to gather facts and evidence related to two fire shelters deployed at the Fish fire on August 10, 2001 at about 11:15 p.m. On August 11, 2001, the BLM Nevada State Director issued a Delegation of Authority to the team. The investigation team assembled at about 3:30 p.m. and began their investigation. The team members were as follows:

- Team Leader, Mike Ferguson, Associate State Director, BLM Idaho
- Chief Investigator, Stan Palmer, Safety Manager, National Interagency Fire Center (NIFC)
- Technical Expert (Fire Operations), Kurt La Rue, Fire Management Specialist, NIFC
- Technical Expert (Fire Behavior), Dave Davis, Fire Management Officer, Battle Mountain Field Office
- Sierra Front Wildfire Cooperator Group Liaison, Kelly Martin, District Fire Management Officer, Carson Ranger District (USFS)
- Incident Liaison and USDA Forest Service Representative, Joanne Roubique, District Ranger, Truckee Ranger District

A briefing was held at the Nevada State Office where the team received information relating to the deployment, which included: the Fish Fire update as of August 11, 2001 at 4:00 p.m., deployment summary prepared by Steve Lieberman, Western Great Basin Situation Reports for August 9-11, 2001, a brief history of fire in the area, and the name of the incident commander.

Following the briefing the chief investigator and incident liaison met with involved engine personnel where the Critical Incident Stress Debriefing (CISD) was scheduled. The purpose of the meeting was to let crew members know the interviews would begin on August 12, 2001 and to make sure they understood the distinction between the Deployment Investigation Team and the CISD Team. Other members of the investigation team traveled to the Incident Command Post to meet and have preliminary discussions with the incident commander and the planning section chief.
The investigation team visited the site and walked through the events with the operations section chief and Engine 32 crew, including the two people

who deployed their shelters. Personal interviews, witness statements, medical reports, safety officer report, video tape recorded by Charlie Kingston from the Reno Fire Department, several site visits and reconnaissance flight with digital photos and video were all evaluated in determining the team's findings.

Daily updates were provided to the Nevada State Fire Management Officer (SFMO). The team submitted a 24-hour briefing to the SFMO on August 12, 2001, and a 72-hour briefing was provided on August 14, 2001.

Incident Overview

In the afternoon of August 9, 2001, the Fish fire, under the jurisdiction of Bureau of Land Management (BLM) Carson City District, was reported 10 miles northeast of Doyle, California. The initial attack incident commander ordered a strike team of engines at about 6:50 p.m. The Tahoe National Forest sent Engine 32 and Engine 71 as part of the strike team. The engines arrived at the incident about 8:00 p.m. and were assigned to structure protection on the northeast portion of the fire.

On August 10, 2001, Engine 32 and Engine 71 provided structure protection for the east structures and were later supported by the 1,200 gallon Alpine engine. Three Shasta-Trinity National Forest engines were assigned to an unoccupied trailer to the west (see Photo 1). The Color County Type 2 crew from southern Utah helped with structure protection by constructing a handline roughly 150 yards uphill from the eastern structure. The tactical objective was to use the previously burned area to isolate the structure from the main backing fire.

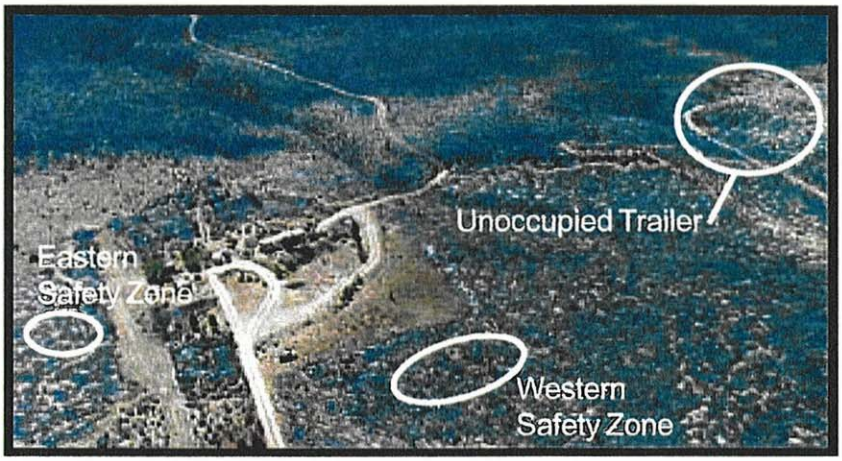


Photo 1 Three Shasta-Trinity National Forest Engines were assigned to an unoccupied trailer.

After a size-up by Engine 71, the Color County crew constructed handline from the road below the trailer and tied into the black (from the previous day) on the knob above and to the south of the structure. The plan was to allow the main fire to back down to the handline, instead of burning out the handline. Preparations were made to use the Color County crew to burnout the line if conditions changed. The Color County crew boss briefed all crew members on safety zone locations and organized everyone for this operation.

At about 9:00 p.m., the main fire moved off the slope and onto the flats of

the alluvial fan. Small fire whirls and dust devils were observed throughout the day as the fire progressed off the slope. At this time, the edge of the fire was about 150 yards from the knob and backing toward the structures in an even line with a moderate rate of spread. One fire whirl developed on the flats above the structures and made a significant run toward the western structure where the three Shasta-Trinity National Forest engines were positioned. The engine crew supervisors told the operations section chief that unless they fired around these unoccupied structures immediately, they would need to evacuate the area. The operations section chief directed them to evacuate the site.

As the fire whirl approached the western structure it made a 90-degree turn and moved toward the eastern structure. The fire whirl then began to draw the main fire front from the flats and caused fire activity to increase as it moved toward the completed handline. At about 11:10 p.m., the fire whirl started to move toward the handline above the eastern structure and the operation section chief and the crew boss simultaneously gave the command for all holding personnel to "move to the black." The lower two squads from the Color County crew moved down the line toward Engine 71 and moved into the western safety zone where their vehicles were parked. One squad from the Color County crew moved up the handline, across the knob and into the second safety zone identified on the east side of the trailer. The Color County crew boss and three crew members began to burnout the handline downhill toward Engine 71. The operations section chief moved toward the barbed wire fence along the top of the handline and instructed a crew member to cut the barbed wire to provide a shorter escape route to the eastern safety zone, in case the burnout personnel had to come back up the hill.

The operations sections chief went to the safety zone on the east side of the trailer after the fence was cut. The fire whirl continued to develop and it became apparent that it would move toward the east safety zone and force incident personnel to move rapidly downhill within the safety zone, away from the approaching whirl.

At this time, the acting engine boss from Engine 32 and one crew member were lowest on the slope along the western portion of the eastern safety zone. The squad from the Color County crew was to the east of the Engine 32 personnel and moved rapidly past them going downhill toward the road. The operations section chief moved between the squad and Engine 32. A division supervisor and a Color County squad leader were highest on the slope. As the operations section chief passed the Engine 32 personnel (about 30 feet to the east) he saw them kneeling to deploy their shelters. As the division supervisor and squad leader proceeded downslope from the Color County crew they saw two fully deployed

shelters (see Photo 2 and Map 1). The division supervisor and squad leader started to turn toward the shelters as they ran but decided to continue downslope away from the advancing whirl and left the people who deployed shelters in position. When the division supervisor saw the two deployed shelters, he removed his fire shelter from its

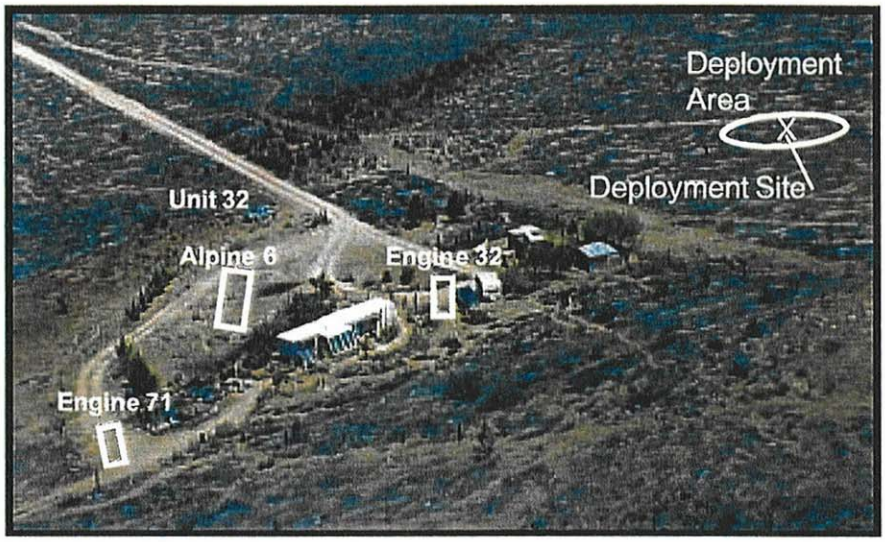
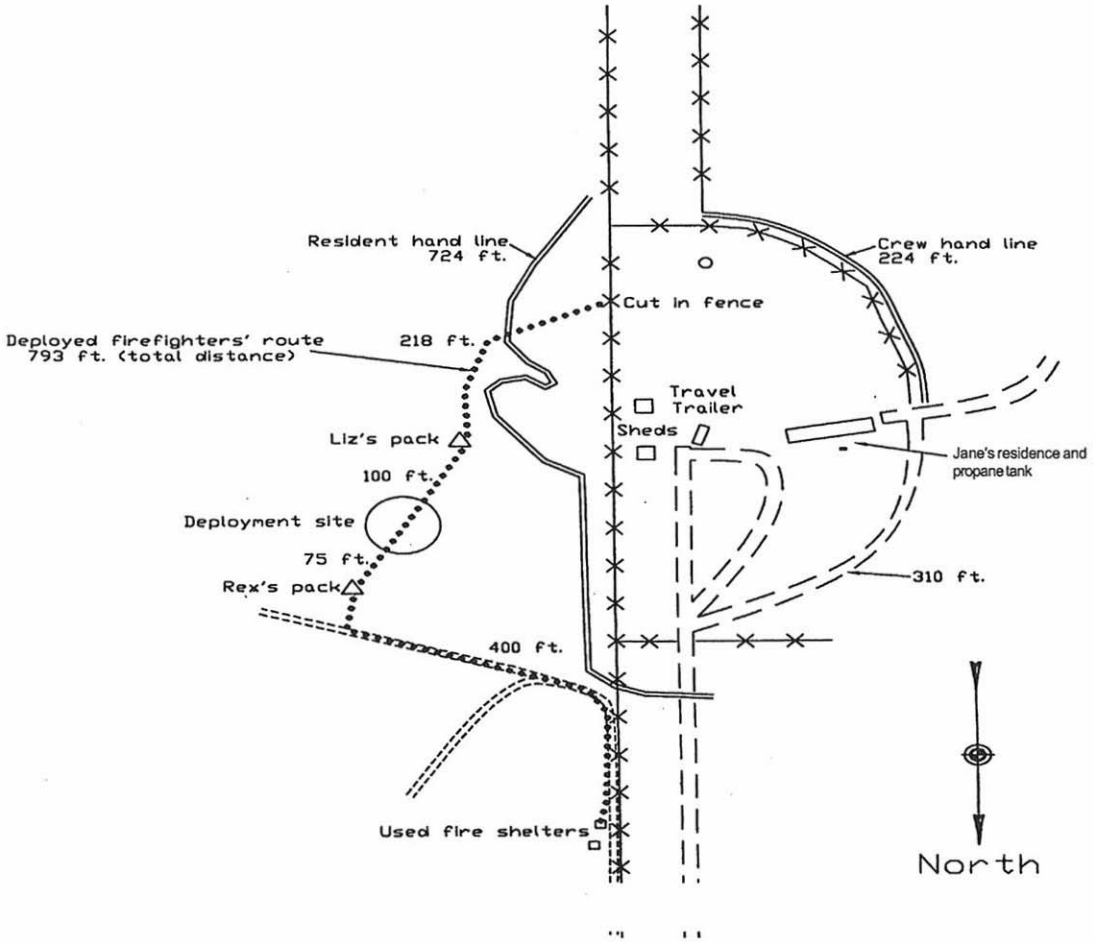


Photo2 Aerial view of deployment site.



Map 1 Fish fire deployment site.

case, held it in his hands, but did not pull the tab. The operations section chief was below the deployment site roughly 300 feet when he dropped his pack and removed his shelter from the case but did not pull the tab. When the operations section chief and division supervisor reached a place well below the influence of the fire whirl they assessed the locations of their resources and accounted for everyone.

All resources were moved away from the area where a propane tank was threatened and vented later. The Color County crew boss gathered his crew members, moved them away from the scene, and did a critique of the incident to access the condition of his people. The two people from Engine 32 got up and used their shelters as heat shields as they moved down the black, through the fence, and over to their engine.

All personnel were accounted for by 11:30 p.m.

The Sierra Front Incident Management Team was assigned to the Fish fire on August 11, 2001. The Fish fire was controlled on August 23, 2001. A total of 22,674 acres were burned in this fire.

Entrapment Investigation Element Matrix

I. Fire Behavior

	Did Not Contribute	Influenced*	Significant Contribution
Fuels			X
Weather	X		
Topography			X
Predicted vs. Observed			X

II. Environmental Factors

	Did Not Contribute	Influenced*	Significant Contribution
Smoke	X		
Temperature	X		
Visibility	X		
Slope	X		
Other			

III. Incident Management

	Did Not Contribute	Influenced*	Significant Contribution
Incident Objectives		X	
Strategy	X		
Tactics	X		
Safety Briefing/ Major Concerns Addressed		X	
Instructions Given	X	X (Engine 32)	

IV. Control Mechanisms

	Did Not Contribute	Influenced*	Significant Contribution
Span of Control	X		
Communications	X		
Ongoing Evaluations		X	
10 Fire Orders and 18 Watch Out Situations			X (Engine 32)

V. Involved Personnel Profiles

	Did Not Contribute	Influenced*	Significant Contribution
Training/Quals./Physical Fitness	X		
Operational Period Length/Fatigue		X	
Attitudes	X		
Leadership		X	
Experience Levels		X	

VI. Equipment

	Did Not Contribute	Influenced*	Significant Contribution
Availability		X	
Performance/Non-Performance	X		
Clothing/Equipment	X		
Used for Intended Purpose?	X		

* Element items must be supported with written documentation.

Entrapment Investigation Elements

I. FIRE BEHAVIOR:

Fuels, Topography and Predicted vs. Observed: While drought conditions exist this is a known quantity for this fire season and as such should have caused potential for extreme fire behavior. Due to the fact that the live fuel moisture is low enough to behave as a dead fuel model, this condition did contribute to the availability of fuel to allow for the fire whirl to develop.

II. ENVIRONMENTAL FACTORS

Did not contribute

III. INCIDENT MANAGEMENT

After talking to the crews and resources on the line they felt like the incident objectives were contrary to what has been taught - protection of life and property, when helicopters and airtankers where being used to protect a rehab investment from a previous wildfire. Safety briefings were done very well by most resources assigned to the fire. Engine 32 was without it's regular foreman.

IV. CONTROL MECHANISMS

On-going evaluation of the developing situation became apparent by all resources and when the fire was beginning to compromise the safety of the resources assigned, the order was given to retreat to the safety zone. Excellent identification of good safety zones should be noted in this report.

The large fire whirl was caused by the local factors and terrain. The size and intensity of the fire whirl surprised fire personnel. One crew person from Engine 32 was separated from his supervisor and lost verbal communication during the retreat to the western safety zone. The unburned fuel in the path of the fire whirl added to its intensity and cut off the escape route to the western safety zone. Fire Orders 2, 6, and 7 were not followed. Watch Out Situations 4, 7, and 17 were compromised.

V. INVOLVED PERSONNEL PROFILES

The Tahoe engines were well into their second full day without a break. This could have been a contributing factor with the lack of ability to make sound decisions. One of the crewmembers that deployed did not have his gloves with him as he deployed. As a significant note, all fire fighters that were interviewed had completed their required refresher training and fire shelter deployment training.

Fire Behavior Narrative

FIRE BEHAVIOR COMPUTER MODEL LIMITATIONS

BEHAVE and other fire predictive computer models have limitations. The fire behavior analyst (FBAN) uses inputs to the model of topography, fuel conditions, and weather to estimate a single ignition point to establish (primarily) rates of spread, fire line intensity, and spotting potential. The FBAN then repeats this process on several map locations to predict an overall forecast of where a large fire will progress and how it will progress over an approximately eight hour period. It is critical for the reader to understand that the prediction of erratic or advanced fire behavior is outside the capabilities of the computer model! The FBAN must rely on experience in the fuel type and other indicators such as drought/fuel conditions, fuel loadings, surface and atmospheric instability, terrain, and outside influences, such as aircraft proximity, to properly and adequately ADVISE fire fighters of the POTENTIAL for erratic/advanced fire behavior. While experience may enable a highly experienced firefighter/ FBAN the ability to recognize developing conditions that may trigger an erratic/advanced fire behavior scenario, computer technology (to date) can not accurately predict/forecast such events.

FUEL CONDITIONS OF FIRE SITE

North western Nevada/north eastern California have been in extreme and protracted drought conditions for several months. This has led to extremely dry fuels of all size classes, both dead and live fuel moisture.

FUEL MOISTURE/TYPE	FUEL MOISTURE CONTENT
1 Hour	1-2%
10 Hour	1-2%
100 Hour	2-4%
1000 HOUR	5%
Sage Brush Live Fuel Moisture at the Doyle Station Sampling Site	70% (Measured July 30, 2001)

The above fuel moistures indicate explosive fire conditions existed at the fire site at the time of the ignition/initial attack and the deployment.

Other indicies including near record or record burning indexes and ERCs support the conclusion of the severe drought and its effect on the fuel moisture conditions.

FIRE BEHAVIOR CALCULATIONS

Recognizing the caveat identified above of the extreme/erratic fire behavior that led to the deployment, the following information is supplied to the reader to indicate the CALCULATED fire behavior prior to the onset of the erratic fire behavior.

Behave Inputs	Input Head Fire	Input Backing Fire
Fuel Model:	6 Dormant Brush*	6
1 Hour Fuel Moisture	2%	2%
10 Hour Fuel Moisture	2%	2%
100 Hour Fuel Moisture	4%	4%
Mid-Flame Wind Speed	5 mph	5 mph
Terrain/Slope Percentage	10%	10%
Direction Wind Vector	0 degrees	0 degrees
Calculate Max. Sread	Yes	NO, 180 degrees

* Fire behavior determination is an art, not a "science". The FBAN on the Sierra Front Team used a fuel model 7, which contains a live fuel moisture component. The investigation team FBAN chose to use a fuel model 6, which does not have a live fuel model component. The extremely dry conditions and fourteen years experience preparing fire behavior predictions in the Great Basin fuel types indicate to this FBAN that live fuel moistures did not contribute to fire behavior spread. This is a judgement/experience call, a professional difference of opinion if you will. This professional disagreement does not discredit either FBAN's findings. Ultimately, our forecasts reflect nearly identical fire behavior predictions: extreme rates of spread with the likelihood/potential of erratic and explosive fire behavior.

RESULTS OF FIRE CALCULATIONS

Behave Output Units	Results, Head Fire	Results, Backing Fire
Rate of Spread	53 Chains/hr.	3 Chains/hr.
Heat Per Unit Area, btu/ft/sec	622	622
Fire Line Intensity btu/ft/sec	604	33
Flame Lengths	8.6 ft.	2.2 ft.
Reaction Intensity	2534	2534
Effective Wind Speed	5.1 mph	0.1 mph

INTERPRETATION OF BEHAVE RESULTS

The results, as with all computer modeling, must be tempered by experience in the particular fuel type, the predicted environmental factors, and ultimately verified in the field through observation and measurement. The head fire predictions, based on field reports, indicate an underestimation of flame lengths and rates of spread, especially as the slope was increasing towards the State line Mountain area. No actual measurements were made or recorded by a FBAN, but fire fighters' field reports indicate flame lengths of 10-20 feet were noted. As expected, the steeper slopes saw rapid rates of spread well above the predicted results.

The fire fighters' field observations of a backing fire prior to the onset of the erratic fire behavior are somewhat consistent with the above predicted results. Their observations indicated a fire backing down the mountain toward the Jane's residence of two to three foot (2-3foot) flame lengths and low rate of spread.

CONCLUSIONS

As noted earlier, BEHAVE and other predictive models are currently unable to predict the erratic fire event that resulted in the Fish Fire shelter deployment of the evening of August 10, 2001.

There were a number of indicators reported to the investigation team that would have indicated the strong potential for erratic fire behavior at the deployment site/Jane's residence area. These indicators include: moderate to heavy fuel loads, extremely dry fuel moistures, strong surface and atmospheric instability (indicated by numerous smaller and moderate fire whirls and dust devils preceding the large fire whirl event and a Haines Index of 5/6) ,and terrain features, i.e. a small drainage. The drainage and slope features led to a horseshoe burn pattern, that eventually led to an uneven heating fire pattern. When the combination of the terrain and this uneven heating event coincided, combined with the strong surface instability, a large fire whirl developed. This fire whirl then moved forward at a fairly rapid rate of spread towards the Jane's residence area. The whirl followed the slope/terrain as well as the available fuel bed. As this fire whirl's fuel was depleted, i.e. it burned into a previously burned area, it lost its energy and dissipated.

Deployment Versus Entrapment

The National Wildfire Coordinating Group (NWCG) defined entrapment as: situations where personnel are unexpectedly caught in a fire behavior related, life threatening position where planned escape routes and safety zones are absent, inadequate, or have been compromised. Entrapments may or may not include deployment of a fire shelter for it's intended purpose, and they may or may not result in injury."

The team was charged with determining whether or not this was an entrapment.

Simply looking at the factual information of the deployment site and the physical features both prior to the fire whirl development and after a retreat to safety zones was ordered, there are some physical factors that have to be identified.

On the evening of August 9, 2001, four separate fires were reported east of the Doyle and Turtle Mountain area. Before sunset a 4,000-acre fire blackened a large swatch of range/grassland. One area affected by this fire was north of the eastern structures (Jane's trailer). Crews and local citizens protected Jane's trailer, as there was evidence of the "resident handline." There was a solid black area to the east and to the west of the trailer, except for a few retardant lines that did not completely burn.

There was a large horseshoe shaped alluvial fan just above Jane's trailer that had not burned that provided the fuel for the fire whirl development.

The handline that was constructed above the trailer was roughly 150 yards. This was the only place that had green fuels on either side of the line. At both ends the handline was tied into solid black.

As the fire whirl began to develop, crew were told to "get into the black". Had crews on the top of the knob tried to get to the western safety zone they would have no doubt been cut off.

Those crews at the top of the knob had no choice but to move into the "eastern" black safety zone, as the path to the "western safety zone" was now cut off as the large fire whirl approached.

As the fire whirl increased in intensity, it began to move up to the knob. Once the fire whirl had made it up and over the knob, it entered the previous days burn. There was likely super heated air in the whirl and

burning shrubs that caught fire and was picked up by the whirl. As it moved into the black eastern safety zone, the whirl was likely "cooled" by the night air and lack of fire.

As evidenced by the scanned path of the whirl, it looks as though the whirl had picked up in intensity and it's base broadened as it moved into the black eastern safety zone.

The incident at 11:15 p.m. on August 10, 2001, was not an entrapment although two fire shelters were effectively deployed. The escape routes and safety zones were present, adequate and the eastern safety zone was not compromised. The shortest escape route from the top of the knob to the western safety zone was compromised. The deployment was a direct result of an unexpected change in fire behavior; development of a large fire whirl; and the location and timing of firefighters going to the safety zones. By 11:40 p.m., nine firefighters had retreated to safety and were counted. Two firefighters effectively deployed fire shelters, two firefighters pulled their fire shelters from the carrying cases while they retreated, and five firefighters moved rapidly to safety.

Some of the firefighters said it was a life-threatening situation and they took corrective actions, while other firefighters said the situation was not life-threatening.

Findings

Fire Behavior

- Extreme burning conditions led to high potential for erratic fire behavior (3-year drought, extremely low relative humidity, fuel moisture, etc.).

- Prior to the fire shelter deployment, several small and one very large fire whirls were observed.

Incident Management

- Two engine crew members deployed shelters along edge of eastern safety zone.

- Two USDA Forest Service engines (E-32 and E-71), a contract Alpine engine and one handcrew were protecting an unoccupied structure with several outbuildings. Three other engines were protecting an unoccupied structure.

- Lack of clear direction and little information on the overall management objectives caused uncertainty about the course of action to take to secure the structures.

- Firefighters disagreed on which divisions of the fire were top priority.

- Type II Team transitioning into incident.

- Decisions on whether or not to have a night shift and directions on firing were unclear.

- Seven fire personnel moved to eastern safety zone safely and did not deploy shelters.

- A lot of people observed the fire whirl for a long time before retreating to a safer location.

- Safety zones and escape routes had been identified and communicated to crews.

- Firefighters were given clear instructions to move to the safety zones.

- Type II team gave crews a safety briefing that was transmitted to fire line personnel.

- A Critical Incident Stress Debriefing (CISD) team and a Deployment Investigation Team were ordered immediately.
- The engine and hand crew personnel requested more information than was provided at the in-briefing when they arrived at the incident.
- No indication of order to deploy fire shelters was issued by overhead.
- Firefighters who deployed shelters did not recognize alternative safety zone to the east or its size.
- The Color County Type 2 crew had clear direction on safety zones and escape routes.
- Firefighters using eastern escape routes and safety zones passed within 30 feet of deployed shelters.
- Fatigue, fire behavior, communication, and confusion led to two firefighters deploying their fire shelters on the Fish fire.
- Incident objectives were unclear to some crew members.

Control Mechanisms

- All crew members were accounted for by 11:30 p.m.

Involved Personnel Profiles

- Crews had been on extended shift (24-26 hours with little or no rest) prior to deployment.
- All firefighters were trained and qualified for the assignment.

Equipment

- All firefighters had the proper personal protective equipment.
- Deployed fire shelters showed little signs of direct flame or heat stress.

Recommendations

- The Office of Fire and Aviation will issue a national advisory when conditions and potential for extreme fire behavior (more whirlwinds, burning later, etc.) are first observed on a BLM fire.
- Incident commanders will emphasize communication on Safety Zone/Escape Routes to ALL personnel.
- Incident management organizations will monitor shift lengths, follow policy on work/rest cycle, and report all extended shifts to the fire management officer.
- The Nevada State Office (Fire) will evaluate using supplemental shelter exercises like the Tahoe National Forest.
- At their pre-season meeting, the Nevada State Office (Fire) will notify all cooperators of availability of CISD teams.
- State offices (Fire) will follow the previously developed policy on Incident Management transitions. They will ensure initial attack organizations know that members of incoming teams may arrive at an incident before official hand-off and these members can assist with management and suppression activities.

Appendix

Sequence of Events

August 9, 2001

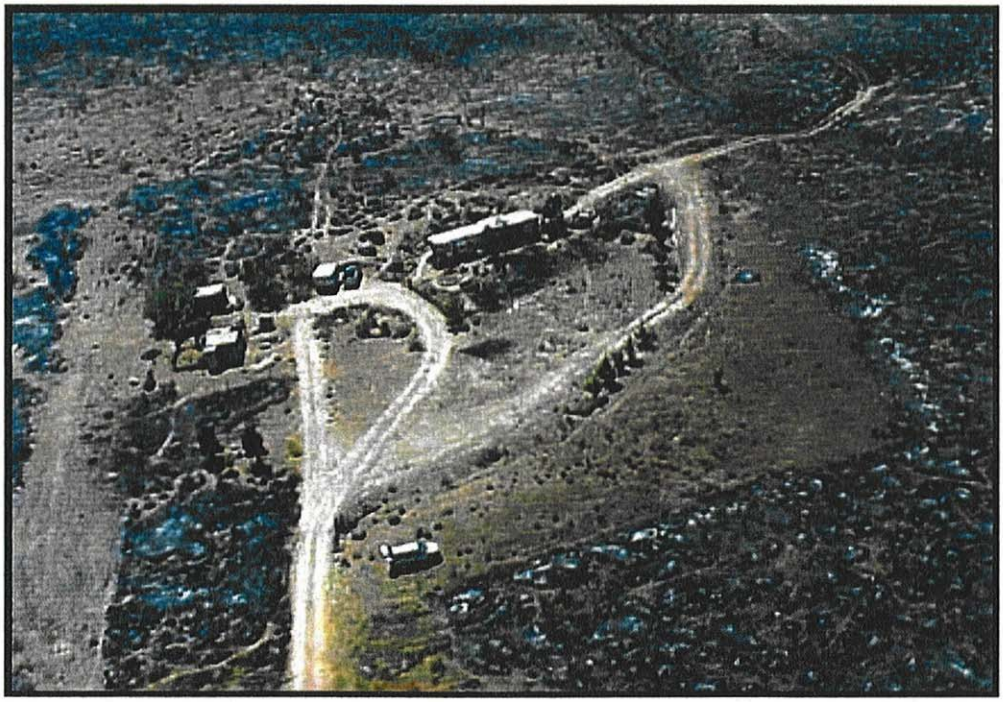
1715	Fish Fire Report
1850	Strike Team of Type 3 Engines ordered TF- 3645 Engine 71 - Tahoe National Forest Engine 32 - Tahoe National Forest
1900	Alpine Engine 6 Type 4 ordered
1830	Color Country Type 2 crew ordered Sierra Front Fire Management Team ordered
2000	Arrival of Engines 32 and 71 Arrival of Alpine 6
2300	Color Country Type 2 crew ETA

August 10, 2001

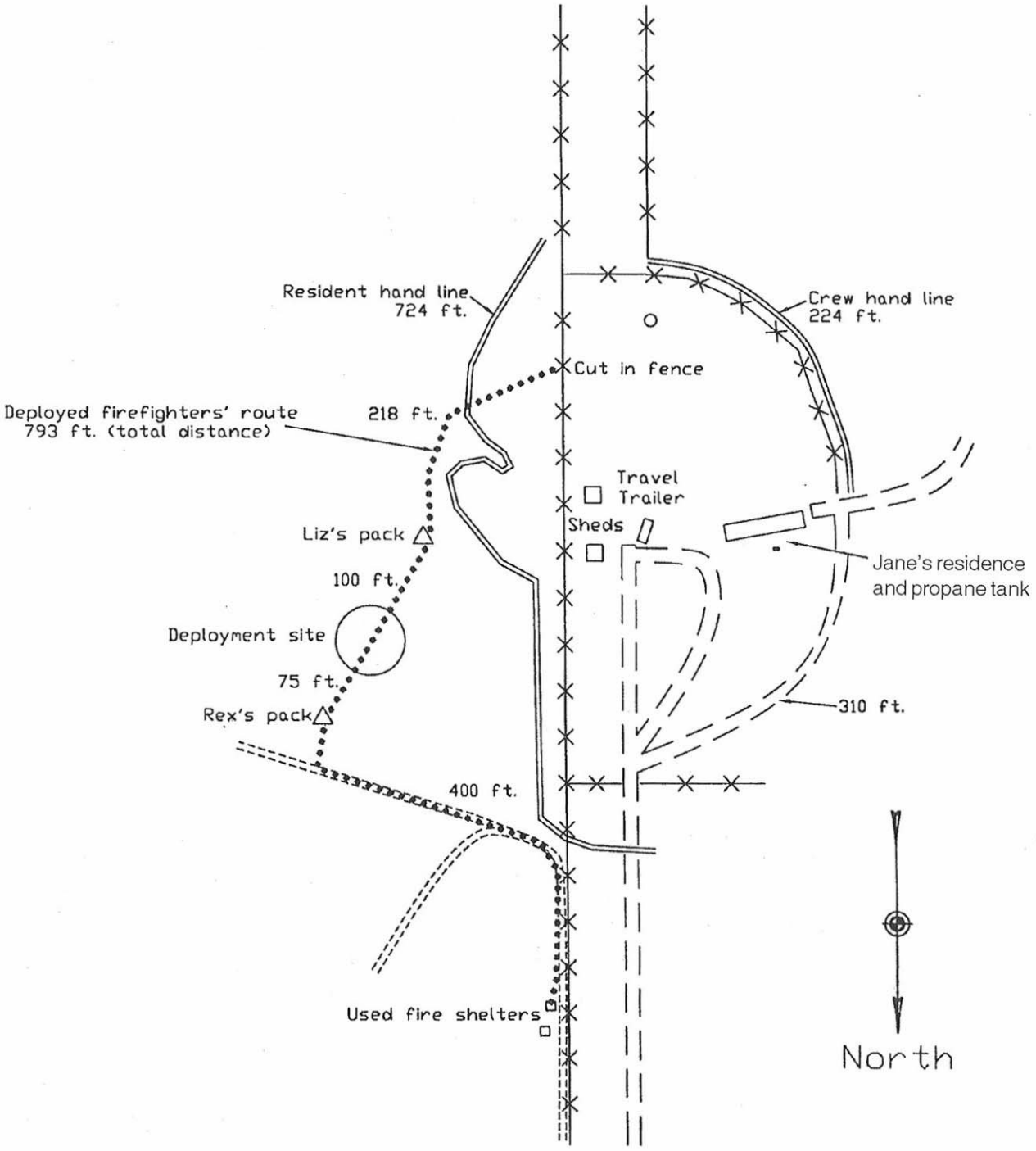
0630	Transition meeting Sierra Front and BLM
1200	Sierra Front Team received Delegation of Authority for the Fish Fire
2000	Started structure protection at eastern structures (Jane's residence) with Color Country Type 2 Crew, Engine 32, Engine 71 and Alpine 6
2015	Planning and safety meeting with Engine Captains and Crew Boss, All agreed on the plan.
2200	Fire became more active as it moved onto alluvial fan and moved slowly across the bottom of the mountain.

2200-2210	Fire whirls began to develop and threatened the western structures, the three engines assigned to the western structures pulled out to the main road. A very short time after they left, the main fire whirl made a 90 degree turn and moved rapidly east, straight toward the eastern structures (Jane's residence). The order was given by the operations section chief and division supervisors at about the same time to move to the black while the firing crew fired out.
2310	Order to pull out given on the tactical frequency (TAC).
2315	Second order to pull out from around the structures.
2320	Shelter deployment announced. Two firefighters deployed shelters.
2331	Two firefighters who deployed shelters reported they were at their engine.
2340	All fire personnel accounted for.

Firefighters were able to save the eastern structures (Jane's residence).



The saved eastern structures (Jane's residence) from a southern perspective.



Map 1 Fish fire deployment site.