

## SHORT NOTE TRANSMITTAL

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AGENCY FIRE CENTER

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TO: Ed Shepard, Deputy Director OF&A

DATE: 11/20/98

FROM: Jeff Kline, AFMO

SUBJECT: West Mountain II Fire Shelter Deployment

As per Glenn Carpenter's request, I am forwarding the *Investigative Report of the West Mountain 2 Fire Shelter Deployment* which occurred on September 19th, 1998. In addition, I've included six of the witness statements obtained from the investigation team. Some additional information which may not be apparent in these documents include:

- \* The vast majority of the acreage burned on this fire is administered by the BLM Salt Lake Field Office. A small proportion of the acreage burned was private land.
- \* The incident occurred in an area which is under an exchange agreement with the Uinta National Forest. The Uinta National Forest assumes full suppression responsibility for all wildfires on West Mountain. In exchange, the BLM Salt Lake Field Office has full suppression responsibility for the Vernon Unit of the Wasatch-Cache National Forest which is administered by the Uinta National Forest.
- \* The final review package is the 7-page document titled the *Investigative Report of the West Mountain 2 Fire Shelter Deployment*. No other documentation was distributed in addition to this report. The witness statements attached were obtained by myself while attending an investigative team meeting.

If you have any further questions or comments, please give me a call.

**INVESTIGATIVE REPORT OF THE  
WEST MOUNTAIN 2 FIRE  
SHELTER DEPLOYMENT  
SEPTEMBER 19, 1998**

**I. OVERVIEW**

At approximately 0400 hours on September 19, 1998, a shelter deployment, of a Salt Lake County Crew Representative, took place approximately one half mile west of the Payson Dump on the West Mountain 2 fire, Uinta National Forest in Region 4. West Mountain is located approximately 60 miles south of Salt Lake City on the southeast end of Utah Lake.

According to a statement by the individual involved, the deployment was executed more as a precautionary measure than for life threatening reasons. No injuries were sustained.

Individual involved in the deployment was:

**Wayne Rogers**, Crew Representative, Salt Lake County Type 2 Crew

Deployment of the shelter ended at approximately 0415 hours on September 19, 1998.

The following are a list of people associated with the deployment:

**Dave Goodin**, IC, USFS, Uinta National Forest

**Dan Mindar**, Task Force Leader, USFS, Uinta National Forest

**Shane Freeman**, Strike Team Leader, Flame-In-Goes, Utah State

**Jay Torgersen**, Crew Boss, Salt Lake County

**Joel M. Anderson**, Squad Boss, Salt Lake County

**II. ACTION TAKEN**

On Saturday, September 19, 1998 an Interagency team was assembled to investigate the shelter deployment on the West Mountain 2 Fire. The investigative team was comprised of:

**D. Max Ewing**, Health and Safety Manager, USFS Region 4, Ogden Utah: **Team Leader.**

**Mark Jones**, Assistant State Fire Management Officer, BLM, Salt Lake City, Utah;

**Wini Sorensen**, Fire Use Specialist, USFS Region 4, Ogden, Utah;

**Jon Tucker**, Fire Operations Assistant, USFS Region 4, Ogden, Utah.

**Brett Ruby**, South Zone FMO, USFS Uinta National Forest, Provo, Utah

The investigation was conducted on September 19, 1998, and included on-site visits with the individual involved in the deployment, along with those associated with the incident. The team was taken to the area of the deployment, and given an overview of the incident by Dave Goodin, IC. The team then

walked up to the deployment site to take photographs of the area. Later the team met with the individuals involved, and associated with the deployment as a group and individually with those who wished to discuss the incident. Written statements, which were received between September 21 and 25, 1998, are attached to this document.

### **III. INVESTIGATIVE REPORT**

***FIRE:*** WEST MOUNTAIN 2

***DATE OF INCIDENT:*** September 19, 1998

***TIME OF INCIDENT:*** Approximately 0400 hours

***LOCATION:*** West Mountain SW 1/4 of the SW 1/4 of sec 10, T9S, R1E  
Latitude 40 degrees, 2 minutes, 34 seconds  
Longitude 111 degrees, 49 minutes, .09 seconds

***DATE FIRE STARTED:*** September 18, 1998 at approximately 1830 hours

***FIRE SIZE:*** Approximately 1000 acres at time of incident

***INDIVIDUAL INVOLVED:*** Crew Representative, Salt Lake County Crew

***TOPOGRAPHY:*** General - East slope West Mountain, steep, precipitous. Specific deployment area - 40 percent to 60 percent spur ridge between two drainages. See Topographic map (Appendix A).

***WEATHER:*** The weather in the area of the fire, had been a little wetter than normal, the week preceding the ignition. For the most part, during the summer months, the weather had been normal to above normal precipitation, and normal to below normal temperatures.

***PREDICTED:*** The day of the fire, a Red Flag Warning was in place for strong and gusty southwest winds due to an approaching cold front. The warning was to last until about 2200 hours on the 18th of September. As the front passes, the winds will shift to the northwest and remain gusty behind the front. The forecast for the day of the fire also predicted scattered thunderstorms and showers with snow at or above 8000 feet. See weather forecast (Appendix B).

***ACTUAL:*** Weather was as predicted, however, no precipitation was received in the fire area. After ignition, the fire ran to the north pushed by the south/southwest wind. The winds calmed after about 2300 hours on the 18th of September, and after 0100 hours on the 19th the wind changed direction as predicted from the northwest. The winds remained steady, with occasional gusts. Weather taken by the Salt Lake County Crew at 0049 hours on the 19th of September showed as follows: Dry bulb 65 degrees, wet bulb 50 degrees, relative humidity 36%, and winds 8 m.p.h. gusting to 15 m.p.h. from the northwest. Spot weather forecast from the National Weather service issued at 0142 hours MDT on the 19th of September called for breezy northwest winds, cooler temperatures, and lower humidities. See spot weather forecast (Appendix C). At approximately 0300 hours, according to the Pleasant Grove RAWS station, the wind changed direction and became more northeasterly. This wind shift was not mentioned, or perceived by anyone on the fire.

**FUELS:** Fire spread was through grass, light sagebrush, and occasional juniper. Calculated 1 hour fuel moisture was 6%, 10 hour fuel moisture was 7%, and 100 hour fuel moisture was 8%.

***FIRE BEHAVIOR:***

**PREDICTED:** The fire spread would be wind driven to the north from point-of-origin. Not much lateral spread to the west due to high relative humidities, and little spread to the east due to roads and orchards. After passage of the cold front, fire spread should be southerly.

**ACTUAL:** The fire acted pretty much as predicted. Spread was to the north and rapid through the grass and sage with torching of occasional junipers. The fire was not pushing too far to the west up the slope staying mainly at the base of West Mountain. According to witnesses, the wind died down at approximately 2200 hours Friday night. At approximately 0100 hours Saturday morning, the winds were observed coming out of the north/northwest. At this time, the fire spread was mainly to the south with some spread to the west upslope. Flame lengths on the north side of the fire were estimated, by IC Goodin to be from 2-3 feet with some torching of junipers. On the south side of the fire, the flame lengths were estimated, by Dan Mindar, to be from 4-8 feet with longer flame lengths occurring in the sagebrush. No fire whirls or spotting were observed by either person. Crew Boss Torgersen had estimated the flame lengths to be from 15-20 feet somewhere between 0200 hours and 0330 hours, and stated that after deployment "the fire continued to burn erratically, exhibiting fire-whirls, significant runs, and torching". Torgersen stated that the fire continued to burn in this fashion until just before sunrise when the winds started to die. In Squad Boss Anderson's statement, the fire activity increased, and flame lengths of 15 to 20 feet were observed. No specific times were given in Anderson's statement. According to Strike Team Leader Freeman, at approximately 0500 hours he had already heard on the tactical frequency that the winds on the south end of the fire had picked up to approximately 20 m.p.h., and the crews had lost their burn out. According to the statement made by Crew Representative Rogers, the increase in fire behavior could be attributed to the fire burning in heavier fuels. Rogers also states that somewhere between 0300 and 0400 hours they had to abandon their ideas of direct attack. The BEHAVE model shows rates-of-spread of 12-40 chains per hour.

***STRATEGY AND TACTICS:***

Upon arrival to West Mountain at 2100 hours on the 18th of September, Dave Goodin took control of the fire from Ron Cole, Utah County Fire Warden. IC Goodin then assigned Ron Cole to structure protection on the north end, and Dan Mindar, Task Force Leader, to oversee tactics on the south end of the fire. The strategy as set forth was to protect structures, and keep the fire from spreading to the east by using existing roads and the irrigation canal, stop the fire in the flats on the north end, and on the south keep the fire from crossing the Payson Dump road. Tactically, IC Goodin assigned Engine 1831 and squad 1 (five person crew) along with a volunteer engine from Payson to the south end of the fire. Ron Cole on the north end had three Utah County engines and several volunteer engines for structure protection. The order was given by Goodin to go direct keeping one foot in the black if possible, and to use existing roads to burn from as necessary. Also stressed by Goodin was to not worry about fire spread to the west up hill, as checking the spread to the east, and structure protection were the main priorities.

At approximately 2330, the Salt Lake County Crew arrived and met with TFLD Mindar. Mindar briefed the crew on communication, general assignments and then led them to the assigned area. The crews assignment at that time was to cold trail where the volunteer engines had previously worked,

IC Goodin gave instructions to protect structures, cut line with one foot in the black and one foot out. Use roads to hold and burn out from and let the fire burn up the hill. Hold fire at the canal on the east side and stop the fire on the flats on the north side and to the south and don't let the fire cross the Payson dump road.

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2400 - The Salt Lake County crew had arrived at the fire. Briefed by IC Goodin, introduced to TFLD Mindar and escorted to the southeast point of the fire to begin assignment.

September 19

0049- The Salt Lake County Crew, after taking weather for a spot forecast, began working north following the burn and cold trailing the fires edge.

0122 - The Flame-n-Go's strike team of engines arrived at the fire. IC Goodin had Ron Cole and Shane Freeman (STEN) recon the fire. IC Goodin assigned E-623, 624, and 625 to the north flank and E-626 and 627 to the south flank.

0130 - Northern Utah handcrew arrived at the fire and were assigned to the north flank to work with the engines.

0130 - The volunteer engines were released as the structures in the north were no longer threatened and they were making good progress with mopup in the area.

#### **Southern Part of Fire 0130 until Sunrise**

The Salt Lake County Crew, and Engines 626, and 627 cold trailed and burned out on the south and western edge of the fire using an existing wetline and roads in the area. As they were cutting handline to the north and west towards a rockslide on the western flank of the fire, the fire increased in activity and began a rapid spread to the south and the west causing the crew to retreat back down their line south to a jeep trail that ran east/west. At this point, Mindar, Torgersen and Rogers walked west up an existing road further to the south to assess the feasibility of using this road to hold the southerly spread of the fire. It was determined that the fire was approaching this road too rapidly to allow the crews to get into place to attempt to stop the fire. Mindar and Torgersen walked down (east) the road while Rogers attempted to fire the road as he followed behind them. The crew and the engines had continued to move to safety along the lower (east) flank of the fire.

Mindar and Rogers walked to another jeep road located to the south about a 1/4 mile. This road also ran from east to west. Mindar went down (east) the road to access the feasibility of getting the FIG engines up the road. Rogers went up (west) the road to see if they could burn out from the road, flank the fire, and keep it from continuing to the south. The time is unclear, but according to STEN Freeman's statement, he had been requested by radio (E-627) to come to the south end of the fire. Mindar called for the engines to meet him at the road, while Rogers had called for the crew to follow. Rogers called Mindar and advised him that they would be unable to anchor the line at the top of the road. Mindar stated that the fire was not moving up the hill and that they did not need to worry about the west flank. It was then agreed to use the road as a holding line when the crew and engines arrived.

Mindar noticed that the fire had reached a small draw that adjoined the road to the north and was beginning to move up the draw towards the road. Shane Freeman realized that the attempt to burn out from this road would not be successful so he pulled his engines back down the road to the east. At this point all of the resources are accounted for and safe with the exception of Rogers. Mindar noticed that Rogers was not down on the road with the crew, he then called Rogers on the radio and asked for his location. Rogers replied that he was still on the road above fire and the fire was about to bump the road

below his location. Mindar asked if Rogers was OK. Rogers replied that he was fine, in a good location and was going to deploy his shelter.

**Rogers Statement:** "I walked up the road to see if we could burn out and hold the fire here. I walked up the road to where I was at the same level as the upper edge of the fire, and advised the crew below of one finger that was spreading rapidly to the south. At this time, I started working my way quickly down the road, but realized that the fire was spreading rapidly, and I was not going to outrun it. I observed the fire blow over the road about 50 yards below me, and was considering my options, such as going out ahead of the fire, or going back up the road, but I realized that the fire was about to hit the road where I was. I found a spot in the road that was double wide and decided to deploy..."

Rogers advised Mindar of his situation, and stayed in radio communication with his crew and Mindar during the deployment. Rogers estimated that his time in the shelter was about ten minutes (TFLD Mindar estimated the time to be about 15 minutes). Rogers also stated that during his time in the shelter, he was never uncomfortably warm, however, at one point he touched the side of the shelter with his arm and said it was very warm. Rogers also stated that he felt some heat when the side of the shelter blew off of the ground. It was noted that the shelter also filled with some smoke at that time.

After the fire had passed Rogers folded up his shelter, marked the spot with the pull tabs and wrapper, and walked down to where the crew was waiting. Estimated time in the shelter was between 10-15 minutes. When he tied in with the crew they stayed at the bottom of the hill and watched the fire until sunrise.

#### **IV. FINDINGS**

1. There were erratic changes in wind velocity and fire behavior.
2. IC Goodin's instructions and the instructions given to the Salt Lake Crew by TFLD Mindar differ.
3. Captain Rogers was above the fire and there were unburned fuels between him and the fire.
4. The Salt Lake County Crew had been told there had been wet line laid down by the engines and they couldn't find it. Incorrect intelligence.
5. Tactics were not based on current or expected fire behavior.
6. The Salt Lake County Crew, and the Flame-n-Goes were working in country not seen in daylight.

#### **V. CASUAL FACTORS**

1. Finding 1 significantly contributed. The increased wind velocity combined with heavier fuel loading caused the fire to move faster than anticipated. Fire Order 2.
2. Finding 2 significantly contributed. According to IC Goodin, crews were not to worry about uphill spread, but tactically, the crews were instructed by TFLD Mindar to go direct where they could, which

The estimated production rate for a type 2 crew, according to the 410-1 (fireline handbook) for line construction, burnout and holding in fuel model 2 is 16 chains per hour. The crews on the south end of the fire implemented a holding action by cold trailing and burning out from the line as they progressed in a northerly direction toward the head of the fire. In order to cut off the southerly run of the fire, the crew left the road to construct handline toward the rocky outcrop. Tactically they were now at a disadvantage, as the ROS had potential to exceed their production capability. The fire jumped the area the crew was working toward, and rapidly continued burning to the south. This should have been an indicator that tactically, they did not have enough resources to flank, or cut off the fire. The same tactics were considered a short distance from the first stand to no avail, and then once again at the time of deployment. Although the crews were not in a position to take action either of the last two times, the scout (Rogers) put himself at risk, by underestimating the potential fire behavior.