United States Department of Agriculture | Forest Service | R-1

File Code: 6700/5100 Date: March 27, 1997
Route To: 6700/5100

Subject: Shepard Mountain Fire Entrapment Investigation

To: Forest Supervisors and Staff Directors

A review has been completed of the Shepard Mountain Fire and the Entrapment Investigation Report.

Enclosed is a brief summary, with action items for various administrative levels and officials, and a discussion of the fire and its chronology. I ask each of you to review this summary and determine the action items that pertain to your unit. It is my expectation you will personally ensure the actions identified are completed.

We encourage you to share this information with all employees and interested publics and cooperators.

Providing for the safety and health of our employees is of the highest priority and we believe these actions are key to our success. These are stressful times and we are all under pressure, but we must take the time to assure safe working conditions, attitudes and actions. We cannot do less. I encourage you to share any ideas or suggestions you have for improving the safety and health of our employees with the Directors of Fire, Aviation and Air or the Regional Safety and Health Manager in the Human Resources Staff.

/s/ Richard M. Bacon (for)

HAL SALWASSER
Regional Forester

Enclosure

cc:
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SUMMARY

The Shepard Mountain Fire was a rare event. A similiar fire occured in the late 1890's according to accounts of local history. The topography, normal southwest flow of wind, coupled with the normal fuel buildup, set the stage for this significant wildfire. Similiar fires have occured in recent history in other locations along the Absaroka-Beartooth area set up by the fuel buildup, a dry summer, a lightning storm and strong winds. Following the large stand replacement fire in the 1890's, a number of summer homes and cabins were built around East Rosebud Lake with some others scattered down-canyon. When the Absaroka-Beartooth Wilderness was established by Congress, the area with homes and the access road was excluded. This long, narrow corridor is nearly entirely surrounded by the Absaroka-Beartooth Wilderness.

The Shepard Mountain fire started on August 25, 1996, by a lightning strike in the Absaroka-Beartooth Wilderness Area approximately one and one-half miles south of East Rosebud Lake. Fire danger at the time was very high to extreme for the Beartooth Ranger District of the Custer National Forest. The Ranger District had experienced three times the normal number of starts during the season. The Shepard Mountain incident was the twenty-third fire of the season on the Beartooth Ranger District. The Northern Rockies Geographical Area was at Preparedness Level IV. The National Preparedness Level was V, the highest level.

The Assistant District Fire Management Officer (ADFMO) for the Beartooth Ranger District, [redacted], made an assessment of the fire as soon as he could drive from the District headquarters in Red Lodge to East Rosebud Lake. Based on the assessment, ADFMO [redacted] declared the Shepard Mountain Fire a wildfire. The fire was located in rough, cliff-like terrain inside of the Absaroka-Beartooth Wilderness precluding safe initial attack by handcrews. ADFMO Mark determined that the fire could be confined with water drops from helicopters.

At this time, numerous fires were burning throughout the Northwest, the Great Basin, California, Rocky Mountain and Northern Rockies areas. On August 25, the Incident Management Situation Report from the National Incident Coordinating Center in Boise, Idaho, listed 24 incidents and discussed the mobilization of two Type I and two Type II Incident Mangement Teams for fires in the Northwest. Three days later, the report for August 28, 1996, displayed 53 large fires across the western United States. Twenty-eight Incident Management Teams were assigned including 13 Type I teams and 15 Type II teams. At this time, the nation's firefighting forces were reaching full committment. Nearly 16,000 people were fighting fires and the remaining forces were in place to provide the initial attack for new starts. In addition, one military battalion was assigned to a fire, while two others were being prepared for assignments. In the Northern Rockies area, new starts had the highest priority for assigning available resources.

The strategy for the Shepard Mountain Fire was to confine the fire within the rock slides and other natural barriers with the use of helicopter bucket drops,

because the fire remained in an area which was too steep and rocky to work in safely with ground crews. The fire continued to burn but was held within the predetermined boundary with the bucket drops until August 31, when a cold front moved through the area. The fire spotted outside of the confinement boundary as a result of gusty winds. As this area was not as rugged, firefighting resources and Type I crews were ordered. Since the fire had exceeded the confinement objective as documented in the Escaped Fire Situation Analysis and had moved north, closer to the residences in East Rosebud Creek, a Type II Incident Management Team was ordered. The Incident Management Team took over the fire on September 1, 1996. Two Type II crews were assigned and a strike team of engines was assigned to the fire.

The Beartooth Ranger District prepared an Escaped Fire Situation Analysis. The District Ranger selected an alternative to contain the fire to the west side of East Rosebud Creek, prevent the fire from spreading north toward East Rosebud Lake and extinguish the spot fires that exceeded the original confinement boundary to the north. The Incident Management Team implemented the selected strategy taking action on the two spot fires and on the main fire on the west side of East Rosebud Creek.

On September 4, 1996, the Shepard Mountain Fire blew-up when a high-velocity, unpredicted wind event moved the fire approximately 8 miles in less than 11 hours. The fire spread rapily down-canyon, growing from approximately 800 acres to 8,000 acres in that time. Fire behavior was extreme, exceeding any ability to control the fire. Consequently, 13 firefighters deployed shelters, 35 homes or cabins were destroyed, along with approximately 40 outbuildings. One firefighter was burned with second degree burns during the shelter deployment of 10 members of the Fort Peck #30 crew.

The high-velocity wind event leading to blow-up conditions was the direct causal factor resulting in burn injuries to one firefighter and the loss of 35 residences in the vicinity of East Rosebud Lake on September 4, 1996.

Under these blow-up conditions, with observed windspeeds of 20-25 miles per hour and gusts estimated to 40 mph, fire behavior was extreme, exceeding all efforts to control the fire. Wind speeds were not predicted at the velocities observed.

The Shepard Mountain Fire holds important lessons for Line Officers, Incident Management Teams and firefighters in the Northern Region of the Forest Service. As a result of this Incident:

The Regional Forester will:

. Review fire protection staffing, support and oversight of forests with low fire occurence, characterized by long interval fire regimes. During periods of

high to extreme fire danger, extraordinary measures will be taken to provide necessary skills on those units.

Line Officers will:

. Assign Incident Management Teams commensurate with potential fire behavior and values at risk considering incident complexities.

Line Officers and Incident Management Teams will:

. Involve affected jurisdictions for the development of strategy and tactics including them in a unified command and delegations of authority when necessary.

Incident Management Teams will:

. Be staffed with Fire Behavior Analysts. These Fire Behavior Analysts will be assigned as a required member of all Incident Management Teams. Lookouts will be assigned on the basis of fire behavior knowledge and experience.

Fire Managers will:

. Reinforce instructions to firefighters on the selection of safety zones and deployment of fire shelters in the annually required Standards for Survival training.

SHEPARD MOUNTAIN FIRE

I. INTRODUCTION

This report is a chronology of events and actions from the Shepard Mountain Fire. The Shepard Mountain Fire was started by a lightning strike on August 25, 1996. The fire was reviewed by Ranger District personnel and declared a wildfire. It continued to burn until September 12, 1996.

Approximately 75 structures, including 35 homes or cabins, were consumed by the fire due to an unanticipated high-velocity wind event.
The fire burned within the Absaroka-Beartooth Wilderness until the afternoon of September 4, when very strong down canyon winds pushed the fire into the lower East Rosebud drainage.

A similiar fire occured in the late 1890's according to accounts of local history. The topography, normal southwest flow of wind, coupled with the normal fuel buildup, set the stage for this significant wildfire. Following this large stand replacement wildfire in the 1890's, a number of summer homes and cabins were built around East Rosebud Lake with others scattered throughout the canyon. When the Absaroka-Beartooth Wilderness was established by Congress, the area with homes and access road was excluded. This long, narrow corridor is nearly entirely surrounded by the Absaroka-Beartooth Wilderness.

II. CHRONOLOGY OF EVENTS AND ACTIONS

On August 25, a thunderstorm passed through the western edge of the Beartooth Ranger District of the Custer National Forest. The Ranger District had been experiencing high to extreme fire danger since late July and had three times the average number of wildland fires during this time. The lightning storm ignited a fire approximately one and one-half miles above East Rosebud Lake within the Absaroka-Beartooth Wilderness. The fire was detected and reported by [redacted], the East Rosebud Association caretaker.

[redacted], the Assistant District Fire Management Officer (ADFMO) of the Beartooth Ranger District at Red Lodge, Montana, left the District to assess the fire at approximately 1615. When he arrived at East Rosebud Lake, he assumed command of the incident. He estimated the fire to be nearly .5 acre. The fire was actively burning, with torching occurring in trees and groups of trees. Since the fire was burning in very rough terrain, but contained natural barriers, Incident Commander (IC) [redacted] did not commit either smokechasers or smokejumpers to the fire until they could get a better look in the morning by helicopter. IC [redacted] determined that the predominance of natural barriers (rock slides, talus slopes and cliffs) with scattered fuels would hold the fire at its current location overnight.

IC [redacted] ordered the Gallatin National Forest helicopter for 0630, August 26, to assess the fire and aid in dropping water as necessary. He requested a spot

weather forecast from the National Weather Service office in Billings, Montana. The weather forecast for the fire called for decreasing winds with higher humidity (55-65%) and temperatures lowering to the 40's which supported the prediction that the fire would remain in the current location overnight.

After returning to Red Lodge, IC [redacted] prepared a Fire Situation Analysis (FSA) for the Shepard Mountain Fire. The FSA determined that this fire should be contained within the Absaroka-Beartooth Wilderness. The fire suppression strategy was developed to hold the fire from moving down canyon with helicopter water buckets. Owing to the dangerous, cliff-like terrain, it was determined unsafe to put firefighters directly on the fire to build fireline. The selected strategy was guided by the Custer National Forest Fire Management Action Plan. The Gallatin NF helicopter continued to drop water when not needed for reconnaisance.

IC [redacted] assessed the fire from the air during the early morning of August 26. It appeared there were actually two fires from the storm and they were separated by more than 1/4 mile. While assessing the fire, IC [redacted] determined the earlier FSA remained valid. The fire continued to burn in extreme terrain and precluded safe use of firefighters in direct attack. Therefore, he placed an order to Bozeman Dispatch for a second helicopter, Type II, for bucket work to confine the fire within the projected boundary. He also placed a request for the use of Yellowstone National Park's Type III helicopter for bucket work until the Type II helicopter was in place. Yellowstone NP made their helicopter available, so both the Gallatin NF and Yellowstone NP helicopters were utilized to confine the fire from down-canyon movement and to the west side of East Rosebud Creek.

Later in the morning, Beartooth District Ranger, [redacted], flew the fire and concurred with IC [redacted] on the suppression strategy selected. The Type II helicopter arrived in mid-afternoon. All three helicopters worked on the northern half of the fire for the remainder of the allowable flight time that day. The Yellowstone National Park helicopter returned to the Park at 1700 hours. The Shepard Mountain Fire did not increase in size except for some spreading south and west into the Absaroka-Beartooth Wilderness. The fire did not spread north towards East Rosebud Lake and the size remained at approximately 40 acres, but only about half the area had burned.

At 2000 hours, on August 26, IC [redacted] and Incident Information Officer, [redacted] from the Custer NF Supervisor's Office, met with residents at East Rosebud Lake. They informed the East Rosebud residents how the fire started and what actions were being taken and why. IC [redacted] informed the residents about the natural barriers and helicopter work being done to confine the fire to the current location.

On August 27, IC [redacted] continued the strategy of water bucket drops. The fire remained within the natural barriers during this day, and moved further south into the Absaroka-Beartooth Wilderness. He remained in contact with the Billings National Weather Service office through spot weather forecasts using weather observations from the vicinity. [redacted], the East Rosebud Lake caretaker, was asked to pass fire information on to the residents. Fire behavior, fire size, suppression actions, weather forecasts and a short-term prognosis were included in the information.

The next day, August 28, the Gallatin NF helicopter was requested to return to Bozeman for initial attack work. That left one helicopter, the Type II ordered for this fire, which continued to reinforce the north boundary of the fire throughout the day except for a period in mid-afternoon when a passing thunderstorm caused downdrafts preventing it from flying. Light rain fell and dampened fire activity for the remainder of the day. The fire did spread further southward into the Absaroka-Beartooth Wilderness, but stayed within the boundaries of the FSA. IC [redacted] continued to assess the decision to continue firefighting efforts with helicopter buckets without ground forces based on concerns for firefighter safety due to the steep terrain.

The National Weather Service indicated the next cold front could be expected on Saturday, August 31. Consequently, IC [redacted] put the priority on bucket work to suppress the northern half of the fire, if possible. He requested that Bruce Thoricht, Billings Area Fire Weather Forecaster, come to the fire the following day, August 30, to become more familiar with the fire and refine his weather forecasts accordingly. Higher humidities and gentler winds moderated fire behavior during August 29 and 30.

On August 30, [redacted], Acting District Ranger met with [redacted] and [redacted] of the East Rosebud Lake Homeowners Association, to discuss the fire activity and strategy. Bruce Thoricht and IC Mark walked the East Rosebud Trail to view the fire. They discussed long-term management of this fire. Thoricht indicated the predicted cold front for August 31, would bring wind but not a wind event that would threaten the confinement boundaries. The expected front was coming rapidly and was expected to move through the area in one to two hours. Thoricht and Mark discussed the possibility that the cold front could slow down and they could experience high wind velocities for a prolonged period. IC Mark believed the suppression actions taken had prepared them for the event as much as possible. The fire was mapped and found to be somewhat larger than earlier estimated. The size was approximately 90 acres.

The anticipated cold front did slow as it reached the State lasting longer than expected with increased windspeeds. At approximately 1500 hours on August 31, IC Mark began ordering resources in anticipation of more erratic fire behavior due to this slower, more intense cold front.

Late in the evening, the fire did breach the northern confinement boundary where spotting occurred towards East Rosebud Lake. Although there was no immediate threat to the structures, the fire had moved to less rugged terrain, where it was safer for firefighters to work. IC Mark ordered two Type I handcrews and another Type II helicopter to suppress the spotfires north of the main fire. In addition, he ordered a strike team of structure engines, as a precautionary measure for the homes in the East Rosebud Lake area. IC Mark, now the Acting Fire Management Officer (FMO) for the Custer NF, ordered a Type II Incident Management Team (IMT) to assume management of the Shepard Mountain Fire due to the continued erratic fire behavior. He also ordered a structure protection specialist to prepare a Structure Protection Plan for East Rosebud Lake residents. John Ladvala, the county fire warden, was ordered and assigned as the structure protection specialist and Tom Gonnoud, Custer NF, was assigned as an assistant.

At 2000 on August 31, IC Mark met with the East Rosebud Lake homeowners to inform them of the situation and the actions he had taken. Tom Highberger, Acting District Ranger, IC Mark and others met at the Beartooth Ranger Station to prepare an Escaped Fire Situation Analysis (EFSA) for the Shepard Mountain Fire considering the change in status of the fire.

On September 1, Acting District Ranger Tom Highberger, Wilderness Resource Specialist Tom Alt and IC Mark completed the EFSA. They also prepared maps and gathered pertinent information to give to the Incident Management Team which was to arrive the following morning. The EFSA selected a strategy that would prevent further fire spread northward, contain the fire west of East Rosebud Creek and suppress the spot fires that had started north of the confinement boundary, under the guidance contained in the Custer National Forest Fire Management Action Plan. Ground forces would only work where they could reach the fire safely and be given escape routes and safety zones.

A fire briefing and transition meeting was held early in the morning with the Incident Management Team (IMT). The Billings Dispatch Center, the IMT coordinator, could not fill the order for a Fire Behavior Analyst (FBA), a standard position on the IMT. Beartooth District AFMO Mark provided weather and fire behavior information to the IMT until a fire behavior analyst would arrive. Acting District Ranger Highberger assisted Linda Williams, IMT Fire Information Officer, with preparation of a public meeting to be held at the East Rosebud Lake Lodge later that evening. The tactics used for that day continued to hold the fire on the western side of the canyon. The fire was creeping slowly down towards East Rosebud Creek in stringers of fuel among the rocks. Ground forces consisted of two Type II handcrews--Fort Berthold #2 and Fort Peck #10--who began work where they could reach the fire safely.

The next day, September 2, with the exception of the spotfires, the fire activity on the north side near East Rosebud Lake was within the confinement boundaries identified in the EFSA. The fire did spread south, further into the wilderness. The crews placed portable pumps and hoselays to work the spot fires and mop up on the west side of East Rosebud Creek. The second Type II helicopter arrived during the late afternoon. Due to erratic fire behavior up-canyon, hikers were held at Rimrock Lake until the fire calmed down. Good progress was made on mopping up the spot fires that had breached the original northside confinement boundaries. Fire size was estimated at 600 acres.

September 3 brought similar weather, and the fire continued to spread, crossing East Rosebud Creek on the east side where it was stopped from spreading by the handcrews. Good progress was made on the spot fires in and around East Rosebud Creek, but there was still a significant amount of fuels and heat within the perimeter of the fire. AFMO Mark relayed information to the IMT that a cold front was expected later in the week but could arrive as early as tomorrow. This information was received from Fire Weather Forecaster Bruce Thoricht.

The weather discussion for Tuesday indicated little change from the current weather pattern, predicting a weak, upper level disturbance with high cloudiness and isolated showers. The Tuesday, September 3, afternoon forecast indicated little change for Wednesday predicting the winds to move from east to south to west as the frontal system moved through. This forecast also indicated less windspeed. The Wednesday morning forecast gave a similiar discussion and indicated temperatures, humidities and wind would be about the

same as predicted in the Tuesday afternoon forecast. A fire weather watch was indicated for thunderstorms in the northern zones, but not for Zone 111 which covered the Shepard Mountain Fire. There were indications that moisture would increase following the frontal system and winds would increase in the evening and that night and change direction from east to south.

The weather was warmer and drier than expected on Wednesday morning, September 4. When the operations activities began, the fire was already beginning to rekindle, indicating lack of humidity recovery overnight. ADFMO Mark called the National Weather Service office for an updated forecast at 1145. The Billings Weather Service personnel concurred that the cold front was already impacting the fire. Shortly thereafter an updated forecast was issued with a Red Flag Warning for the fire area calling for dry thunderstorms, low humidities and gusty winds. The winds observed and recorded at the Remote Automated Weather Stations (RAWS) were much greater than anticipated. Windspeed at the Yellow Mule RAWS site was 35 miles per hour out of the southwest.

The spot weather forecast predicted normal winds except when thunderstorms were present. This unanticipated, strong, high-velocity wind began Wednesday about 1100 and continued into Thursday morning. The morning weather forecast for Zone 111 predicted a cold front passage for Thursday, but the predicted cold front had arrived early with very low humidities, high temperatures and down-canyon winds evident before 1100. The fire began acting like a "blow-up" fire near noon on September 4, burning with greater intensity and spotting as the low humidity, increased wind and the heat generated from the ignition of dry fuels, began to interact. At 1210, the radio log indicates the Operations Chief and Division Supervisors were ordering the crew members to get into the black (previously burned areas that are considered good safety zones) as the fire intensity had increased, creating an unworkable situation.

At about 1300, the IMT Safety Officer and the Emergency Medical Technician deployed fire shelters following an evacuation of an injured firefighter on helispot H-4. They remained on the helispot following the evacuation and deployed their fire shelters when the fire intensified. They did not have enough time to rejoin the fire crews as the fire had suddenly become very active. The safest area was at the helispot. At approximately the same time, 10 members of the Fort Peck #30 crew, isolated from the main fire by the spot fire they were working on, moved into a small rock slide. The Type II helicopter dropped water to cool the fire. They were guided to the larger area by Operations Section Chief Paul Chamberlain, who was in an observation helicopter and determined the area they had selected was not an adequate safety zone.

The crew arrived at the larger rock slide at approximately 1400. Fire intensity continued to increase with fire behavior becoming intense and erratic. Final preparation for evacuation of the homeowners and fire camp was completed. At approximately 1330, the evacuation plan was implemented and by 1530 was successfully completed. Spotting was estimated at one half mile in front of the main fire at the time of the evacuation. A staging area was set up at the Sanford Bridge Crossing. At this time, ADFMO Mark, acting as the Custer NF FMO, ordered a Type I IMT to replace the Type II IMT, as the complexity of the fire had exceeded the complexity of a Type II IMT assignment.

By the time the evacuation of the fire camp personnel and homeowners began, all of the fire crews were moved into the "black"; i.e., previously burned areas, with the exception of the 10 members of the Fort Peck #30 crew and a fire lookout who had been put on a vantage point on the east side of East Rosebud Creek. The lookout could not get into a "black" area as there was too much unburned fuel between him and the fire area.

As the fire intensified, the lookout was told to ready his fire shelter for deployment as necessary. He was guided through the procedure to deploy a fire shelter by John Murray, Operations Section Chief Trainee, by radio. At approximately 1615, the lookout deployed his fire shelter. The Fort Peck #30 crew deployed their shelters at approximately the same time due to intense heat. Though they had discussed the possible need to deploy their fire shelters with Murray, little site selection or preparation had been done. The crew chose to remain near the top of the large rock slide area near the timber stand, rather than relocate nearer the center of the large opening. The lookout experienced high winds and could not hold his shelter down. It seemed to pick him and the shelter off of the ground. He eventually worked his way down to East Rosebud Creek where he took shelter in the water, and where a few moments later, he and George Hirschenbirger, Division D supervisor, met. Hirschenbirger had just walked into Division D, following a morning observation flight when he stopped at a vantage point to observe the Fort Peck #30 crew. He stayed near the creek talking with the Fort Peck #30 crewboss and monitoring the fire activity. As the fire grew more intense, he had to go into the creek.

Similarly, 10 members of the Fort Peck #30 crew were experiencing increased heat from the fuels burning adjacent to the rock slide area where they were located. They asked Operations Section Chief Trainee Murray when to get into their fire shelters. They had several conversations with their Crew Liaison on the radio. After discussion, they were advised to deploy their shelters at approximately 1615, approximately two hours after arriving at the large rock slide. They remained in the shelters for approximately one half hour, when the heat subsided. One firefighter, Darrell Hall, began to scream after being in the fire shelter for 2-4 minutes. He said he had deployed on some duff and the duff had ignited and started to burn under the right edge of his shelter. It got hotter and smokier under his shelter. He said he looked up and part of the foil was gone from the right side of the fire shelter. He jumped out of his shelter and tried to get into other shelters without success. McClammy, the squad boss, hearing Hall's screams, looked out and yelled to Hall to join him in his (McClammy's) shelter. This was very difficult and they both ended up with their feet out of the shelter. The fire cleared the area by 1700. The firefighter, Hall, was the only crewmember on the crew who was injured. He had second-degree burns from his lower back to his upper thighs.

A Life Flight helicopter was ordered for the evacuation of Darrell Hall from the shelter deployment area. Also, a fixed wing aircraft was ordered to be used from the airport, if necessary. Hall was evacuated by 1849 hours.

The fire crews remained in the fire area above East Rosebud Lake, overnight. Fire behavior down-canyon precluded a safe evacuation of the area.

The fire continued to burn, destroying 35 main structures and approximately 40 outbuildings on September 4 and 5. After the evacuation of all the homeowners

and base camp personnel, some firefighting efforts continued near structures down-canyon with the available people and engines. It is thought that at least eight buildings were saved by burning out and reducing fuels around structures.

The Type I IMT arrived early on the morning of September 5, received a briefing, a revised Escaped Fire Situation Analysis and took over the fire at 1800 hours. The fire was contained on September 12 and controlled on October 23.

FACTUAL CONCLUSIONS

The following conclusions did not affect the outcome of the fire, including the structural losses, but they reflect issues of which the fire managers and firefighters should be aware.

1. A firefighter from the Fort Peck No. 30 crew was burned. Neither he nor the lookout who took shelter in East Rosebud Creek had Standards for Survival in 1996. Members of the Fort Peck crew are only required to have Standards for Survival every 3 years under BIA policy.

2. The lookout assigned to the fire on September 4, had not had an annual refresher in Standards for Survival.

3. The injured person from the Fort Peck crew deployed his shelter adjacent to, and on top of, unburned vegetation.

4. Several fire shelters were damaged from abrasion, and several others lacked the hard plastic protective liner.

5. Assistance provided to the Beartooth Ranger District was less than the normal provided during similar fire situations. The Incident Commander who was the Assistant Fire Management Officer for the Beartooth Ranger District also served as the Acting Fire Management Officer for the Custer National Forest.

6. The Custer NF and the State of Montana did not update the annual operating plan/agreement for FY 1996. Coordination of structural protection and structural fire suppression activities should have more closely followed the Master Agreement.

7. Structural losses included 35 main structures and approximately 40 outbuildings.

8. The lines of authority, oversight roles, standards for performance and responsibilities for staffing IMTs are not clearly defined within the East Zone of the Northern Rockies Coordinating Group.

9. The observed weather was not reconciled with the forecasted weather early on the morning of September 4th. The temperature was much higher than predicted and humidity was lower. The team implemented the Incident Action Plan based on forcasted weather.

10. The Fire Situation Assessment and the Escaped Fire Situation Analysis (EFSA) were prepared in a timely manner, however, the EFSA did not examine the probability of consequences associated with severe fire behavior.

11. As the fire increased in size, fire complexities and values at risk escalated. Ultimately, the fire exceeded the selected strategy of the EFSA. The growing threat was not fully recognized, consequently, the EFSA was not updated to reassess the strategy and the potential consequence of the fire.

12. A fire behavior analyst (FBA) for the IMT was ordered, and attempts to fill the request were made by the East Zone, however, none were available within the Zone.

13. There is a shortage of fire behavior analysts within the East Zone. This was recognized as a problem when the Type II IMT's were organized. Rotating two FBA's through the three Teams did not work during this fire.

14. The evacuation plan and its subsequent execution worked well.

15. The contract for Critical Incident Stress Debriefing did not provide the level of service expected or needed. ?

Attachment: Shepard Mountain Fire Progression Map