

# **Non-Serious Wildland Fire Accident**

## **CARSON HOLE PARACHUTE LANDING INJURY**

### **July 3, 2010**

#### **REPORTS GIVEN BY:**

Jumper 1: 1<sup>st</sup> Jumper in the door (JIC-Jumper in Charge)  
Jumper 2: 2<sup>nd</sup> Jumper in the door (injured on jump)  
Jumper 3: 3<sup>rd</sup> Jumper in the door  
Spotter: Spotter on Jumper XX  
Pilot: Pilot on Jumper XX

#### **BACKGROUND**

On July 3rd at 12:50 pm, Jumper 2, a Boise BLM smokejumper, fractured his left fibula and severely sprained his right ankle while landing his parachute on the Carson Hole Fire (GMF-193 EKU0). The aircraft was Jumper XX, a DHC-6 Twin Otter dispatched from Grand Junction, Colorado along with three jumpers that were requested to staff the fire. Jumper 2 was medivaced via St. Mary's Air Life helicopter to St. Mary's Hospital in Grand Junction, Colorado where he underwent treatment that afternoon and was released later that same evening. This was his second fire jump of the year. He has been a smokejumper for the BLM and the USFS for 19 seasons. He has performed 423 parachute jumps with no other serious parachute injuries.

#### **MISSION SUMMARY/ENVIRONMENT**

Jumper XX (with pilot and a spotter) was ordered out of Grand Junction, Colorado at 11:42 am to respond to the Carson Hole Fire on the Grand Mesa-Uncompahgre-Gunnison National Forest. Jumper XX departed Grand Junction, Colorado with three smokejumpers on board, Jumper 1, Jumper 2, and Jumper 3. Engine Brush X and Engine XXXX were also responding to the fire. By 12:27 Jumper XX had given Grand Junction dispatch a size up of the fire and was notified by the dispatch that the Forest was determining what kind of action to take on this incident.

The Carson Hole Fire was located on the Grand Mesa-Uncompahgre-Gunnison National Forest at 38° 43.51 x 108° 36.93. The fire was started by an escaped camp fire and was 20 feet x 20 feet in size as reported by the spotter. The fire was burning in pinon-juniper/gambel oak mix with some surrounding grass/sage meadows. The terrain was hilly/rolling mountains with moderate slopes. The aspect of the fire and the jumpspot were west. The jumpspot location was above the fire approximately ¼ mile away.

While the Forest was being contacted, Jumper XX selected a jump spot that was directly next to the fire along a road. A low pass was performed and no hazards were observed in the proposed jump spot. Jumper XX then proceeded to climb to 1500 feet Above Ground Level (AGL) and an initial set of streamers was thrown out to determine wind drift (all standard operating procedures for the smokejumper program). After a streamer descent time of 42 seconds was observed, it was immediately determined to move the jump spot to a higher location approximately ¼ mile away (65-70 seconds is the optimal descent rate for streamers).

The streamers thrown on the second jump spot showed 65 seconds on streamer descent time and approximately 600 yards of drift (approximately equates to 18 mph wind speed). Generally, maximum acceptable streamer drift is 1000 yards, which corresponds to a 30 mph wind speed. A check set of streamers was thrown immediately after the initial set with the streamers landing along the wind-line, but just slightly lee side of the spot. A second check set was thrown and landed on the windward side of the spot. Both check sets of streamers landed within 100 yards of the spot. In addition, the streamers on the ground indicated no strong gusts or abnormal wind conditions. The spotter, consulted with the three jumpers in the door, Jumper 1, Jumper 2, and Jumper 3 and determined that the jump was safely achievable.

At approximately 12:39 Grand Junction Dispatch contacted Jumper XX and requested that the fire be staffed with the three smokejumpers. At this time, Jumper XX began to climb to 3000 feet AGL and the three smokejumpers were briefed on the jump conditions and the additional information that was provided by dispatch. The spotter indicated during the briefing that the winds up high (3000 feet AGL) were showing 30 knots. All three jumpers exited the aircraft in the same stick (3 person stick), with the first jumper in the stick (Jumper 1) agreeing to go low to allow himself vertical separation from the other two jumpers.

All three jumpers landed in the jump spot within a minute of each other. When Jumper 1 (Jumper in Charge - JIC) called up to Jumper XX to inform the jump-ship of his status (on the ground and ok); he was immediately informed that Jumper 2 had just called up and was injured. At approximately 12:51 Grand Junction Dispatch was notified by Jumper XX of an injury, and further information would be given once the jumpers on the ground completed a quick assessment. Jumper 3 asked that the jump ship fly a pattern over Jumper 2, so that Jumper 1 and Jumper 3 could get a bearing on his location. At this time Jumper 3 requested that the trauma kit be dropped from the plane in the jump spot. Jumper 2 was immediately located with his parachute draped over a group of large scrub oak with him in the center, laying upright and somewhat suspended among several broken limbs and tree trunks.

The spotter assigned to Jumper XX, ordered the St. Mary's Air Life Helicopter at approximately 12:54 pm. Grand Junction Dispatch placed the order for the helicopter at 12:57. At approximately 12:59 pm Jumper 1 notified the jump-ship that the need for a helicopter be placed on hold while an in depth assessment was conducted on the injured jumper; Jumper XX immediately notified dispatch of the request to stand down the helicopter momentarily. At approximately 13:03 Jumper 1 made contact with dispatch via cell phone, indicating that the injury was non-life threatening and that the need for a helicopter is being assessed and that a helicopter might be ordered. Jumper 3 performed the initial assessment and treatment of Jumper 2 while Jumper 1 retrieved the trauma kit from the jump spot. At approximately 13:08 Jumper 1 notified Jumper XX to contact dispatch and have the helicopter come to the jumpspot. Jumper XX immediately notified dispatch to get the medivac helicopter launched and provided dispatch with the jumpspot coordinates. The order for the Air Life helicopter was placed at 13:12 by Grand Junction Dispatch.

The treatment given to Jumper 2 included cold compression packs on both of his lower legs. Both of his boots were removed by Jumper 3 and Jumper 1 and his pants rolled up to his knees. Obvious swelling was observed on his left leg in the tib-fib area. Jumper 2 mentioned pain in both of his legs. Jumper 2 was able to sit up to a degree and explain what he thought happened. Both of Jumper 2's ankles and lower legs were wrapped lightly to hold two cold compress packs in place. He was transported to the jump spot with Jumper 3 and Jumper 1 performing a fireman's carry and placed in a position of comfort (utilizing cargo chutes and boxes) on the edge of the jump spot. At approximately 13:27 Jumper 1 updated dispatch via cell phone of Jumper 2's current condition.

Jumper XX notified Jumper 1 (JIC) at approximately 13:40 that the St. Mary's Air Life helicopter was 15 minutes out and that they were in communication with the ship. Jumper 3 and Jumper 1 prepared the jump spot for the helicopter to land while Jumper XX contacted Engine XXXX as they began to approach the fire. At approximately 13:47 Engine XXXX arrived on scene, followed by the St. Mary's helicopter at approximately 13:50. At approximately 13:56 Engine XXXX made communication with dispatch that they were on scene. At 14:01 Jumper XX departed the incident enroute back to Grand Junction.

The St. Mary's helicopter was on the ground at approximately 13:55. Two paramedics came over to the edge of the jump spot to prepare Jumper 2 for transport. He was given a brief assessment, an IV, and placed on a backboard for transport over to the helicopter. Both paramedics, the helicopter pilot, Jumper 1 and Jumper 3 carried Jumper 2 and loaded him on the helicopter. At approximately 14:15 the helicopter departed for Grand Junction. Jumper 3 and Jumper 1 packaged up all the cargo, jump gear and the trauma kit and then proceeded to hike down to the fire. At approximately 1330 Jumper 3 and Jumper 1 joined Engine XXXX on the fire.

## CONCLUSION

All accounts indicate a change in wind conditions experienced by all three jumpers. The streamers thrown previous to the jumpers exiting the aircraft indicated 600 yards of drift. All three jumpers estimated the wind during their final approach to be between 1000 and 1200 yards of drift. The cargo that was thrown immediately afterward and the St. Mary's Air Life helicopter (that was unable to land on an initial approach) experienced the same strong gusty wind, which by all accounts continued until about 4:00 pm that afternoon.

The Ram-Air parachute used by the BLM Smokejumpers is capable of performing safely in consistent winds up to 30 mph. On this particular jump it appears as though the wind indicated by the streamers increased by the time the jumpers exited the aircraft.

A combination of substantial wind increase near the ground and the inability to stay sufficiently upwind to prevent being blown back near ground level caused smokejumper Jumper 2 to land approximately 30 yards away from the acceptable safe landing area, and on the lee side of the jump spot. Down air caused by lee side effects of wind over terrain caused Jumper 2 to land hard, which resulted in his injuries. The fact that two jumpers, both before and after the injured jumper, were able to land safely upwind indicates that Jumper 2 may have been able to do the same. All jumpers are trained to avoid lee sides and to expect wind increases near the ground. On this particular mission, the substantial and unexpected increase in wind strength between the time the streamers were dropped and the time the jumpers were in the air made staying sufficiently upwind very difficult. No flagrant error was made by Jumper 2, only a subtle misjudgment on the increased wind speed closer to the ground.

## LESSONS LEARNED/RECOMMENDATIONS

Some findings and recommendations are directly related to the injury, some are more indirectly related. All are pertinent to the smokejumper management's intent to learn and improve.

- Finding:** A low pass was not done over the second jump spot based on its close proximity to the previous low pass.

**Discussion:** Even though a low pass would not have indicated the incipient change in wind conditions, it is a common practice in the Boise BLM smokejumper program to do a low pass for all BLM smokejumper fire missions. If an alternate jump spot is not in close proximity to the original spot, an additional low pass should be considered.

**Recommendation:** The base manager should continue to ensure that considerations of a second low observation pass are incorporated into future spotter training courses.
- Finding:** During the initial discovery and assessment of the patient, the smokejumpers on the ground (Jumper 1 and Jumper 3) asked that the helicopter order be placed on hold temporarily so they could do a thorough assessment to determine the best course of action.

**Discussion:** The injuries were assessed to be non-life threatening, and the delay caused by placing the helicopter on hold was not of significant impact. However, medivac or medical transport should not be delayed speculatively. It should only be cancelled *after* the more thorough medical assessment is done. This is the more conservative action.

**Recommendation:** The base manager should ensure that the idea of keeping the medivac or medical transport coming is incorporated into future smokejumper training courses.
- Finding:** Smokejumper medical training lessons and scenarios frequently involve full loads of smokejumpers (six to eight).

**Discussion:** All BLM Boise Smokejumpers receive medical training as part of their annual refresher. Lessons and scenarios frequently involve full loads of smokejumpers due to the fact that previous injuries, although infrequent occurrences, have involved full loads of smokejumpers. In the future, when smokejumper medical training is taught during annual smokejumper fire refresher, more emphasis should be placed on scenarios and exercises that deal with smokejumper injuries where only two to four smokejumpers are available to provide care.

**Recommendation:** The base manager should ensure that medical training scenarios and exercises that involve only two to four service providers are continued to be developed and

incorporated into future smokejumper medical training.

4. **Finding:** Strong ground winds are a hazardous element of smokejumper parachuting operations.  
**Recommendation:** The base manager should ensure that mitigating hazards associated with strong ground winds, including non-standard parachute flight patterns, continues to be emphasized during parachute training and jump operations.
  
5. **Finding:** BLM Boise smokejumpers stationed in Grand Junction were not aware of the extent of the professional relationship that dispatch centers in the Rocky Mountain Geographic Area have developed with the St. Mary's Air Life program.  
**Discussion:** Although BLM Boise Smokejumpers are aware of the locations of all the air ambulance helicopters that are located throughout the Great Basin and Rocky Mountain areas, and receive medical training that deals directly with air ambulance helicopters, opportunities and interaction with local medical protocols can be improved. For example, a presentation video produced by the St. Mary's Air Life program is shown to all local fire resources. This video includes information such as radio frequencies and the fact that the helicopter can be turned around at no cost. Such training and information could be valuable to the smokejumper program.  
**Recommendation:** The base manager should ensure that when smokejumper management (the liaison officer/spotter for incoming BLM smokejumper operations) arrives at a BLM outstation, they should review and receive a thorough in-briefing from local/state level leadership (AFMOs, FMOs, Center Managers, etc) about the available air ambulance services and how they interact with wildland fire resources working in the area. This should also be discussed at the post season AAR between the smokejumper and geographic area fire managers.