

Big Hill Fire Smokejumper Accident Learning Analysis



August 11, 2015

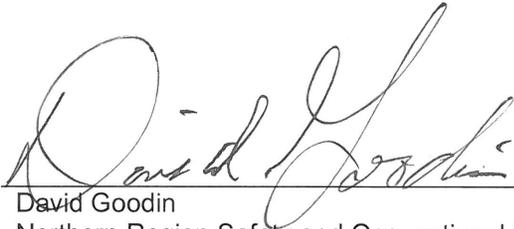
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EXECUTIVE SUMMARY

The Big Hill fire started on August 10th and was located just northeast of Syringa, ID on the Nez Perce-Clearwater National Forest, Lochsa Ranger District. On August 11th at approximately 1211 hours, an accident occurred during a Grangeville smokejumper mission. The accident occurred when the smokejumper landed just short of the jump spot into the side of a steep embankment.

The smokejumper sustained a fractured right femur. The injured smokejumper was given initial treatment on scene and was medically evacuated to the hospital in Lewiston, Idaho.

NARRATIVE

The Big Hill fire (a lightning strike) was reported on August 10th at 2023 hours Pacific Standard Time. The fire was located in timbered mountainous terrain.

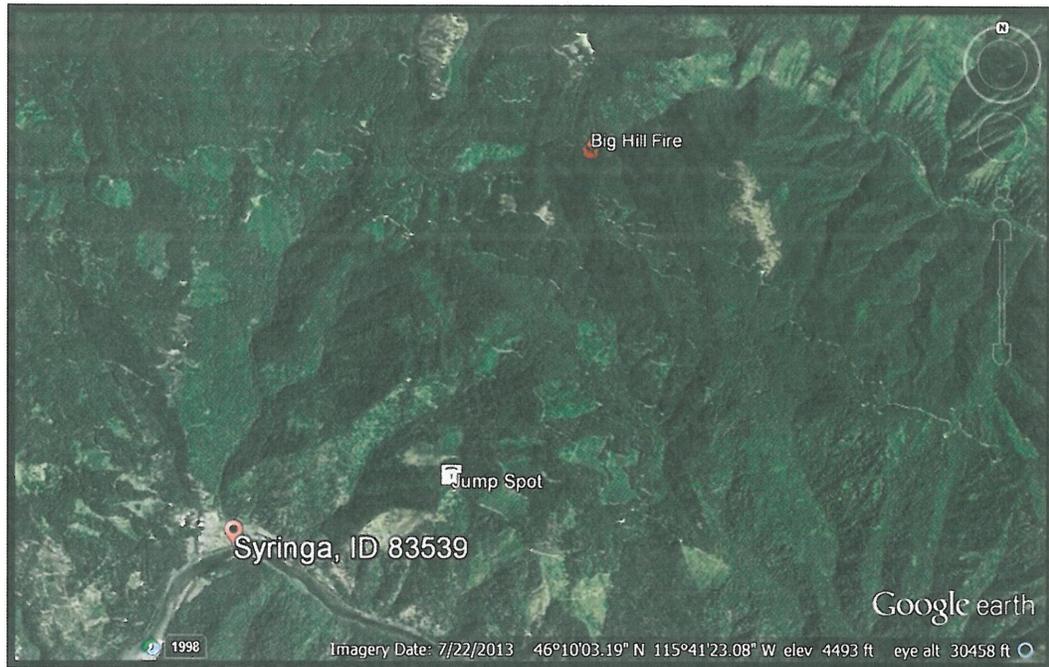
Eight smokejumpers (mixed load with round and Ram-Air parachutes; 4 FS-14s, 1 CR-360 and 3 DC-7s parachutes) out of Grangeville, Idaho were already enroute to the Four Bit Creek fire on smokejumper aircraft, Jumper 14 (J-14). The Mission Coordinator (spotter in charge) and the spotter trainee indicated in their statement:

Upon arrival at the Four Bit Creek fire, J-14 noted there were 12 fires within a 2 mile radius ranging from 3 acres to 1/10 of an acre. J-14 advised dispatch it would take many more suppression resources to work the area, along with a considerable amount of air support.

The smokejumpers were diverted to the Big Hill fire for more efficient use of the resources. District initial attack resources were already on scene, including the Incident Commander (IC). J-14 arrived on scene at 1122 hours. The fire was approximately 1 acre in size. Helicopter ORL was working the fire with a bucket. J-14 contacted the IC and was informed he would like all 8 smokejumpers. The Mission Coordinator and spotter trainee indicated:

The area was heavily timbered and no jump spots were evident directly adjacent to the incident. J-14 contacted the IC and asked if they would be able to shuttle jumpers from a more distant jump spot with vehicles. The IC confirmed that would work. J-14 increased their orbit radius and altitude and was able to locate a grassed over two track on a ridge 2 miles from the fire.

The jump spot, an old log landing (see map), had a large regeneration unit to the north, as well as several feasible alternatives within a hundred yards. The spotter and smokejumpers were satisfied with the spot and conditions. The 4 smokejumpers using FS-14s were let out at 1500' AGL (above ground level) in single person sticks. The 1 smokejumper using the CR-360 and the 3 smokejumpers using the DC-7 were let out at 3000' AGL in two person sticks.



Big Hill fire in relation to the jump spot and Syringa, ID.

The first smokejumper reported most of the drift was up high and winds were calm on the ground and the spotter's release point for the smokejumpers was good. The first seven smokejumpers landed safely in the jump spot. The injured smokejumper was the last out the door of J-14 at 1208 hours using a Ram-Air DC-7 parachute.

The injured smokejumper indicated in his post-accident interview the jump was "very routine" and even reminded himself "don't be complacent" before exiting the door.

He flew a left hand pattern (same as the jumpers before him) to set up his approach to the jump spot. At this time, he was in "deep brakes" which is a steep descent angle because he didn't want to overshoot the jump spot into the trees. When he was about 20-30 feet off the ground, he realized he was in too deep of a descent and didn't have enough elevation to correct his trajectory. He landed just short of the jump spot into a steep embankment (see photo on Page 7).



Map of jump spot and the injured smokejumper's landing spot.

As the injured jumper realized his landing was “bad” he reached his arm up to the intended jump spot to see how far in distance he was in reference to the jump spot. He indicated he was approximately 3-4 feet short. When lifting his arm, he realized something was broken in his right leg. The other smokejumpers on scene, including one licensed EMT and one expired EMT came to his aid and had J-14 cargo drop the Trauma Kit and Traverse Rescue Stretcher. The other jumpers removed his jump suit and took his vitals within 5 minutes. They ordered a helicopter for medical evacuation. The injured smokejumper was prepared for transport and was enroute to the hospital in Lewiston, Idaho within 50 minutes.

According to the injured smokejumper he remembers hearing the other smokejumpers around him, as he was landing, yelling out his name and cheering him on in regards to how close he was to the jump spot. At the time, the other smokejumpers hadn't realized that the jumper was injured.

The injured jumper's family was notified by Smokejumper Management and a co-worker, who knew the injured smokejumper and family well, on the condition of the injured jumper. The family was transported to Lewiston, ID by the co-worker. A Forest Service liaison was at the hospital and assisted the injured smokejumper and his family with logistics and necessary paperwork.

TIMELINE

Event	Time (approximate)
Diverted to Big Hill Fire	1113 hrs.
J-14 on scene	1122 hrs.
Injured smokejumper out the door of J-14	1208 hrs.
Notified dispatch of injury & called for medical evacuation	1224 hrs.
74H on the ground at the evacuation spot	1312 hrs.
Enroute to hospital	1326 hrs.
Arrived at Hospital	1400 hrs.

INCIDENT FINDINGS

The analysis of this incident produced the following findings.

Jumper Background and Training

The injured smokejumper became a Missoula smokejumper in 2007. On July 31, 2015, he was part of a smokejumper booster crew (reinforcements) to the Grangeville Smokejumper Base.

In Missoula, he went through spring refresher training for returning jumpers. He demonstrated proficiency and later went onto to be a rookie smokejumper instructor completing an additional 16 proficiency jumps. Over his career, he has had a total of 197 proficiency and fire jumps. During the 2015 fire season, he had completed 7 fire jumps before the Big Hill fire jump. His last jump prior to the Big Hill fire was on the Fern fire August 5th.

His jump proficiency was within Interagency Smokejumper Operations Guide (ISMOG) requirement to have a minimum of 1 operational or proficiency jump in the prior 30 days.

The injured smokejumper has been a licensed EMT for numerous years and has attended Wilderness Medicine Training in the past. Every year during smokejumper refresher training, all smokejumpers attend an Advanced First Aid/CPR and AED training. This Wilderness training instructs Smokejumpers on improvised injury care and treatment, patient packaging and site preparation for MEDEVAC transport.

Work/Rest Ratio

The injured smokejumper's last day off was August 4th and the injury occurred on August 11th. The smokejumper's work/rest ratio was within guidelines.

Jump Operations

The jump spot is 1.4 miles northeast of Syringa, ID. The latitude is 46° 9.318'N and longitude is 115° 41.904'W. The jump spot was an old log landing in a small saddle with scattered Fir and Ponderosa pine. It was mostly clear of obstacles and about 1/3 of an acre in size. It had good approaches from all directions except directly up wind (tall trees). Streamers showed 200 yards of drift from the east and winds were calm on the ground. Streamer times were 1:05 on all 3 sets.

Several other jump spots were evaluated. Each of the spots, including several large clearings and a road turn-around were littered with dead and down timber. A jump spot nearby with a RAWS station in it was also less desirable because it had more slope and the alternates (landing spots) had dead and down timber in them.

Jumper Landing

The injured smokejumper from his interview indicated he didn't want to overshoot the jump spot. As a result, he went into "deep brakes" creating too steep of an approach. He tried to correct his brake setting but he didn't have enough altitude. As a result, he came up short of his intended jump spot, landing into a steep embankment (see photo).



Injured smokejumper landing site.

Injury and Medical Response

After the landing, the injured Smokejumper experienced pain to his right side and right upper leg. He told the other jumpers he may have a broken leg. After the smokejumpers on the ground assessed the injured jumper for life threatening conditions they notified J-14 that the last smokejumper was injured upon landing and requested the Trauma Kit and Traverse Rescue Stretcher (TRS). There were 2 Emergency Medical Technicians (EMTs) on scene including the injured smokejumper. After taking the injured smokejumpers vital signs and applying the KTD, (note: the smokejumpers had practiced taking vital signs and using the KTD days prior to this incident) they ordered a Forest Service helicopter (74H) at 1224 hours for immediate medical evacuation. The agency helicopter was ordered in lieu of life flight or an ambulance which would take additional time. The other smokejumpers then placed the injured smokejumper into the TRS and placed him in the shade, to maintain the injured smokejumpers body temperature and to monitor his medical condition.

Since the injured smokejumper was an EMT and was conscious, he was able to help the other EMTs in their assessment and treatment of his injury.

The Mission Coordinator reported:

After the cargo was delivered to the alternate cargo spot, the mission coordinator contacted the jump spot and relayed the coordinates and geographic location of the gear to the jumpers. He informed them J-14 was running low on fuel and asked if they saw a need for Aerial supervision at their scene. They replied they did not think it was necessary, as the fire was not a factor, and 74H would be on scene shortly. J-14 agreed with their assessment. J-14 contacted the IC and briefed him on the progress and the plan for the medevac. He informed the IC of the need to return to Grangeville Air Center (GAC) for fuel and departed the area. Enroute to GAC, the Mission Coordinator, relayed all pertinent information to Grangeville dispatch.

The injured smokejumper was transported at 1326 hours directly to a hospital in Lewiston, Idaho landing at approximately 1356 hours.

Approximately 1 hour and 45 minutes passed between the accident and arrival at the hospital. The smokejumper sustained a right fractured femur.

Personal Protective and Smokejumper Equipment

The injured smokejumper was wearing all the required personal protective equipment (PPE) and parachute equipment which includes:

- Smokejumper Helmet with face mask
- Smokejumper Kevlar protective jump suit with padding
- Nomex clothing, Nomex flight gloves, and approved firefighting boots (Whites)
- Harness with main (DC-7) and reserve parachutes
- Personal gear bag and standard Forest Service issued radio

All the equipment was inspected and determined not to be a factor in this incident.

Risk Assessment

The U.S. Forest Service Smokejumper program completed in March of 2013 the Safety Impact Analysis for Smokejumper Operations and Aircraft Operations. This document included overall risk assessments for smokejumper loft, field work, training, operations, and base activities.

Throughout this operation, the Mission Coordinator and smokejumpers continued to evaluate risks and mitigate those risks (for example: assessment of jump spots, fire size-up, and spotter's pre-jump briefing.)

WHAT WENT WELL

- Smokejumper training was current.
- Smokejumper was within work/rest guidelines.
- Smokejumper risk assessments were reviewed and up-to-date.
- Communications were good from ground to air.
- Two out of seven smokejumpers on the ground were EMTs (1 licensed and 1 expired).
- Smokejumpers had practiced taking vitals and using the KTD days before the incident.
- Excellent response, organization, and implementation of an "incident within and incident."
- The smokejumper base provided excellent support to the injured smokejumpers family.
- Smokejumper Management & Operations were very helpful and supportive in reviewing this incident.

RECOMMENDATIONS

The analysis of this incident yielded the following recommendations.

Recommendation 1: Include analysis of accident reports and performance data into established training for landing in unintended jump spots.

Smokejumper Program managers and training supervisors should continue improving upon the collection of accident reports and performance data for further analysis, trends, and enhancement on how smokejumpers can mitigate hazards in rough terrain jump spots. Develop training for smokejumpers on how to analyze/recognize/mitigate what is “adequate time” to identify a hazard and make the needed adjustments.

Recommendation 2: Forest Service management should emphasize and continue basic and advanced Emergency Medical training for employee care throughout the Region. Due to remote locations and sparse medical care, many units and employees have recognized the need and have initiated advanced Medical Training for their employees

The National Smokejumper Program already has a high standard of Emergency Medical training which contributed to the successful outcome of this “incident within an incident.”