

## Carson City Elevated SAFECOM

1. **SUMMARY.** At approximately 1030 hours on August 17, 2011 a vendor-operated Type 1 helitanker (S-64E helicopter) supporting BLM fire suppression operations the Ray May Fire released a load of water in close proximity to three firefighters from a ground firefighting crew. All three firefighters fell into rock scree (loose rock debris) with two of the firefighters receiving minor injuries that required transportation to medical facilities.
2. **SEQUENCE OF EVENTS.** On the morning of August 17 a supervisor ordered a Type 1 helitanker to work the unstaffed portion of the line ahead of the mishap ground crew and another ground crew. This order was filled by the mishap aircraft at approximately 1000 hrs. When the mishap aircraft arrived at the fire, the mishap ground crew did not have a ground (radio) contact in place yet to coordinate the drops from the helitanker.
3. At approximately 1015 a single tree became engulfed with fire and emitted embers across the handline and started to ignite the unburned vegetation (sloper) behind both crews. The mishap ground crew proceeded back down the handline where the sloper occurred to take action. Shortly thereafter the helitanker arrived on scene to assist with the suppression of the sloper. The helitanker was unable to make radio contact with the mishap ground crew on the assigned air-to-ground frequency.
4. A crew captain from the second ground crew was nearby and heard that the helitanker was unable to contact the mishap ground crew and initiated radio contact with the helitanker. The crew captain (from the second ground crew) gave the helitanker pilot a target description for the water drop and the helitanker made a dry run to ensure that he had the target. The helitanker pilot changed the flight path due to the winds and terrain then made a live run releasing half of the available water (approximately 1000 gallons).
5. The crew captain provided feedback on the drop and instructed the pilot to move one rotor width to the Northeast of his last drop and drop sooner. At approximately 1031 the helitanker circled around and conducted the second drop which impacted three firefighters (figure 1).

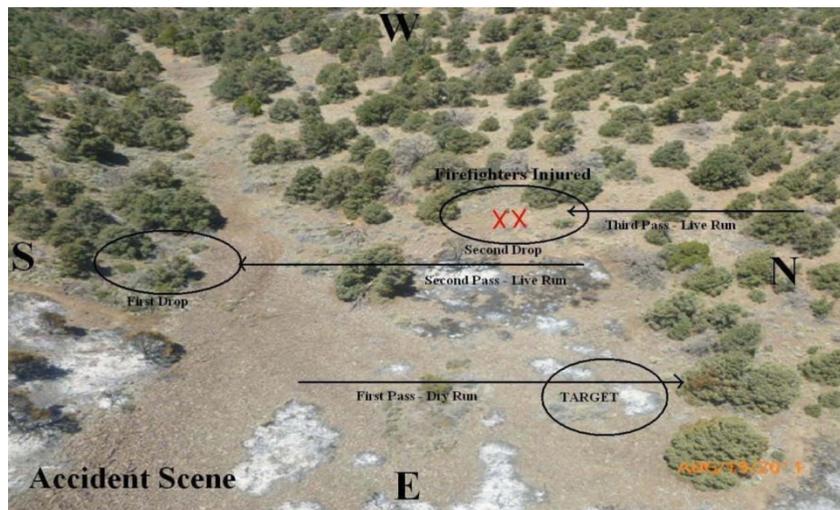


Figure 1. Overview provided by BLM investigation.

6. Immediately following the mishap the fire dispatcher was notified of the injuries and a second helicopter was sent to transport the firefighters to separate medical facilities based on their injuries.

7. A thorough SAFECOM (11-0808) was submitted on August 19, two days after the event. The Nevada BLM conducted a separate, formal investigation of this incident.

8. Due to the circumstances of the event the AMD Chief, Safety and Program Evaluations Division elected to “elevate” the SAFECOM and to incorporate the findings of the BLM fire investigation.

9. **FINDINGS.** Communications and coordination on the part of the ground crews was inadequate. The target for the water drop was not adequately identified and known to all, resulting in a water drop in close proximity to personnel on the ground.

10. When the helitanker made its initial dry run the ground contact provided feedback to identify the target area. The pilot asked to change the flight path based on the winds and terrain and requested that the ground contact clear all firefighters from the drop area. The ground contact approved the changed flight path and assured the pilot that the firefighters would be clear from the drop area.

11. After the first water drop the ground contact provided feedback that the drop was long and that he needed to move one rotor-width to the **northeast** and start the drop earlier. Prior to the second drop, **the pilot was again assured that the line was clear** and he made his drop. **The second drop was not to the northeast as requested, but to the northwest** resulting in the water impacting three firefighters, injuring two of them. After the drop, the pilot made a slight left hand turn, looked back, and saw the three firefighters lying in the rock scree.

12. Only one air to ground frequency was being utilized for the entire incident. The air-to-ground frequency was known and monitored by the helitanker, by the Air Attack airplane, and by the ground contact. Due to the fire activity, both fixed and rotor-wing aircraft were being utilized on the fire at the same time. Congestion on the air to ground frequency caused frustration for air and ground resources and made it very difficult to relay critical information to key personnel.

13. The ground crew involved in the mishap was not able to communicate effectively with the helitanker. The mishap ground crew had the primary air to ground frequency programmed into their radios, but the frequency was identified as the secondary air to ground (vice the primary). This resulted in the crew not being able to initially monitor air to ground transmissions properly. By the time the mishap crew identified the programming issue the second ground crew was already in contact with the helitanker and the mishap crew monitored the radio transmission with the helitanker.

14. The firefighters were evaluated by line-qualified Emergency Medical Technicians (EMTs) prior to being moved. However, the Incident had not pre-identified a Medevac aircraft. Pre-planning emergency actions helps to ensure a prompt and appropriate response to a variety of situations. The medical transport of the injured individuals on this incident was appropriate for the nature and extent of their injuries and occurred without delay.

15. Documentation of the accident by key personnel was inadequate. The BLM review team found it difficult to get written or photographic documentation from witnesses and key personnel present at the time of the accident. Although all personnel associated with the accident gave the review team their full cooperation, documentation was lacking.

16. BLM, at both the State and National levels, are commended for quickly providing accident prevention information related to this and other incidents to field users.

## **17. RECOMMENDATIONS.**

### **18. Bureau of Land Management.**

- a. BLM National Aviation Office issued Aviation Operations Alert 11-01 on August 31 to address this and three other recent aviation mishaps. Regarding this mishap the Alert recommended *“Ensure communications are heard and understood to include: knowing the pilot’s intentions, providing concise and accurate target description, confirming target area is clear of all personnel and crew location is secure if rolling or falling debris is dislodged, provide honest and constructive feedback on drops. If drops are unsafe – immediately stop the drops and communicate concerns to the appropriate person.”*
- b. The BLM Non-Serious Accident (fire) Investigation recommended:
  - i. Before water drops occur, pilots and ground contacts need to agree on what the target actually is. Targets may be better identified with the use of flagging, panels, or mirror flashes. Until the target is properly identified and known to all, both pilots and ground contacts should consider additional dry runs or the release of the aircraft from that mission.
  - ii. For target description, use left, right, position of slope, or clock position per IRPG page 65 rather than compass directions.
  - iii. Clear communication must be in place regardless of the number and types of aircraft assigned to an incident. If communication with aircraft is inadequate, additional frequencies should be requested or assigned prior to continuing aircraft missions. If additional frequencies cannot be obtained, reduce the number of aircraft over the incident.
  - iv. Assure all key personnel have had their radios programmed correctly prior to the beginning of fire season.
  - v. BLM Incident Commanders will evaluate assigned aircraft for Medical Transport capabilities and incorporate that information into the Incident Action Plan (IAP) and/or briefings.
  - vi. Air and ground personnel need to document significant events on an incident (Unit Log form 214 or other forms of paper documentation). This needs to be stressed at

preseason meetings, Division breakouts (briefings), and tailgate safety sessions. All incidents and accidents of any type on fires need documentation from involved personnel and key individuals. Write it down while it is still fresh in your memory. Take pictures if you think they will somehow aid in a possible investigation or safety discussions within your own crew.

19. The BLM Non-Serious Accident (fire) Investigation thoroughly addressed the issues in this mishap and no additional recommendations are offered.