

Rapid Lesson Sharing

Event Type: Cougar Creek
Blackhawk Bucket Operations

Date: August 26, 2015

Location: Pacific Northwest Region



One of the many Washington National Guard Blackhawks used during the 2015 fire season in the Pacific Northwest.

NARRATIVE

After several longline bucket issues at the Cougar Creek Helibase, a trend was noticed in the conditions of the guy wires and positioning of the bucket itself upon return from bucket operations.

The condition would indicate that the Bambi bucket was not allowed enough time to "un-spin" before entering the water at the dip site. It further indicated that the control head was being used as the actual "plunger" to force the Bambi bucket to sink.

From his vast amount of time spent at dip sites over the past 24 years, Tony Randall, the Deck Coordinator with Dillon National Helitack on this

incident, had some ideas on how and why this was happening. "I spoke directly with the Dip Site Manager who was onsite at this particular dip site," Randall explains. "After our conversation, my initial ideas were confirmed and some suggested corrective items were identified."

"Time Out" Taken at Helibase – Conference Held

Quickly recognizing that this ongoing problem was creating equipment damage, lost time, and had various potential safety concerns, it was decided to have a "time out" at the helibase—followed by a conference with Randall and the Air Operations Branch Director, the Helicopter Manager, as well as the entire flight crews from both National Guard Blackhawks on this incident—including their Crew Chief, Engineers, and both Pilots.



Visual Aid

Watch this short video that helps identify the bucket operational issues that were occurring with Blackhawk helicopters on this incident.

<https://youtu.be/ICl2-uQcLN8>

The conference was intended to be a tactical pause to recognize and identify problems, as well as an opportunity to share potential corrective suggestions. A visual aid was designed and used to provide the pilots a better understanding of how the identified bucket operational issues were occurring. (See video on left.)

[IMPORTANT FOLLOW-UP NOTE: After the "timeout"

and the conference was held, twisted guy lines and bucket hang-ups have not been reported on this incident.]

Problem 1: Twisted or Hung-Up Guy Lines/Longline

The Bambi bucket has its own flight profile—it wants to spin. However, due to their lack of visibility from the aircraft, the crew may not be able to visually see just how spun-up the longline and bucket is becoming.

The longline almost certainly needs to be 80% unspun before the bucket enters the water. Therefore, the speed of the descending bucket into the dip site can directly affect the condition or position of the guy lines and longline as it is being pulled out. Furthermore, the weight of the water in the bucket will compound the effects of the twisted or hung up guy lines by not allowing them to naturally unspin or come free of any hang-ups.



Problem 1: Example of twisted guy lines after the Bambi bucket spins in flight.

Corrective Action 1

Slow the descent into the dip site and allow the guy lines to be completely unspun prior to allowing the bucket to fully submerge.

Problem 2: Bambi Bucket Not Submerging

As the bucket is approaching the water surface, the rotor wash is affecting the bucket's ability to sink. The bucket then skates or slides across the surface of the water when it is hit by the downwash from the rotors. [To see how this occurs, watch this video: <https://youtu.be/5LqTQHjCiG4>]

This causes the pilot to then use the control head of the bucket to sink the bucket. (This also causes the pilot to then "chase" the bucket across the dip site, which, in turn, can cause other severe issues.) "When the control head drops below the bucket in the water, there is a greater propensity for the entanglement of the guy wires and the control head to occur," explains Randall.

Corrective Action 2

Again, a slower descent into the dip site will allow for some of the rotor wash to dissipate and allow for proper alignment of the bucket prior to entering the water. This slower descent also allows for the weights inside the bucket to take affect and sink the bucket naturally.



Corrective Action 1:
Example of unspun guy lines needed prior to entering the dip site.

"When the control head drops below the bucket in the water, there is a greater propensity for entanglement of the guy wires and the control head to occur."

Tony Randall,
Deck Coordinator



Examples of how the bucket may become entangled with guy lines when the control head is used to sink the bucket, rather than allowing the weights in the bucket to submerge it. This can cause unnecessary wear to the bucket and guy lines. In some cases, this can only be fixed by setting the helicopter down and manually untangling the guy wires.



Dillon National Helitack



Washington National Guard



Washington Interagency IMT 5



Pacific Northwest Wildfire
Coordinating Group

This RLS was made possible through the collaborative efforts of Tony Randall and Nate Decker of Dillon National Helitack, and Mark Logan of the Washington National Guard, as well as several members of Washington Interagency IMT 5.

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