

**DRAFT**

10-0748 Ground Firefighters Statement:

“After returning from the Reservoir Fire on the afternoon of 09-14-2010 from an ASM mission we in ASM XX had learned that there were reports from the ground that we were involved in a near mid-air with a HT XXX. This was the third day of flying on the Reservoir Fire and during this day we had a total of 4 heli-tankers 1 type 2 helicopter and 1 media ship. The fire was winding down rapidly. Earlier in the morning we had established a virtual fence and working areas for all helicopters and by the time the perceived near miss had happened we had released all helicopters with the exception of HT XXX to hold them in case of need later in the afternoon. After HT XXX’s fuel cycle was complete, he was released and a type 2 was brought out for bucket support. After 3 days on this fire and several days on the 4 mile canyon fire and many years of other fires together, a great working relationship with these helicopters had been established. At about 1100 ASM XX had spotted some smoke in an area that appeared to have no ground personnel. We cleared it with the ground, on a frequency that HT XXX was monitoring, and did a low pass to bring the spot to the attention of Division x-ray. After completing the pass on our exit we saw HT XXX hugging the west side of the virtual fence established earlier that day and we were hugging the east side of said virtual fence. Upon visual site of HT XXX we exited to the left as planned and he hovered in position. We made verbal contact on the AM channel and stated we had each other in site and made a normal steep exit to climb away. 2 days later with all the commotion from the ground’s perception, the crew of HT XXX and ASM XX had an AAR and were in agreement that it was a non-event.”

“Further separation could have been accomplished if 1. ASM XX would have made his normal announcement on the AM frequency, but it was missed in this instance. 2. HT XXX’s transponder was inoperative for 2 days and fixed the following day of this event, this would have given a TCAS heads up. 3. Complacency with going full pedal to the metal to only 1 helicopter on scene was a factor to cause an over relaxed atmosphere. The virtual fences established on this fire were highly effective.”

10-0739 ASM Pilot Statement:

This SAFECOM references observations of a near mid air collision between ASM XX and Helitanker XXX from the ground on the Reservoir Road fire on 9/14/2010 at approximately 1100 hours. 3 individuals witnessed the event. Myself {Division Supervisor Papa} Division P{t}, and the Assistant Superintendent for XX IHC. The Situation: Three Helitankers had been working the last piece of unlined fire edge in the Cottonwood Creek Drainage starting at around 0900 ahead of the XXX IHC. The canyon is steep, rugged and fairly narrow; less than 1/2 mile wide, and the area the Helitankers were working was at a severe bend in the canyon. The Helitankers were flying a set pattern, approaching from the east up cottonwood canyon from the

dip flying over the drop area turning making their drops and departing to the east back down Cottonwood to the dip. ASM XX had been circling the area being worked, from mid to high altitude, while the cranes working at the designated drop zone. At approx 1100 hours ASM XX reported to DivP{t} that he had detected a flare up to the west of the area the cranes were working, and was wondering if we had personnel in the area, and if we needed to move a helitanker over to that area. He stated he would fly over the flare up and let us know when he crossed the flare up. Division P{t} agreed this would be Ok since we did not know the exact area the flare up was in. Several minutes later ASM XX came in over the flare up low level and tipped his right wing asking if we could see him. We did see him from the ridge we were on. He was west of our location proceeding down Cottonwood Creek, approximately 1/3 of a mile up drainage. At the same time HT XXX was approaching the drop area he had been working from the east up Cottonwood Creek. The three of us who witnessed the event, were standing on a cliff edge directly above the drop zone. The Helitankers were working eye level with us, as they worked the drop zone throughout the morning. It became apparent that if Bravo19 held the current course he would make contact with HT XXX. HT XXX took no evasive action - and it was not observed whether he slowed or not, ASM XX did bank hard to the north {left} up a side drainage out of the path of HT XXX. Both aircraft were operating at what I would consider the same altitude prior the bank of ASM XX. All three of us estimated that the distance of horizontal separation between the two aircraft was in the area of 300 feet.

RASM 9/23/2010 this is the compilation of two SAFECOM's (10-0739 and 10-0748). The fact that thorough documentation of the event is certainly a testament to the continually emerging USFS/BLM/NPS reporting ethos and peer review process that are strengthening our collective safety culture.

By FAA definition:

Near Midair Collision (NMAC) is an incident associated with the operation of an aircraft in which the possibility of collision occurs as a result of proximity of less than 500 feet to another aircraft, or a report is received from a pilot or flight crewmember stating that a collision hazard existed between two or more aircraft.

FAA Order 7210.56 paragraph 4-1-1

<http://www.faa.gov/documentLibrary/media/Order/ATQ.pdf>

It is clear from the After Action Review (AAR) between the flight crewmembers that a “collision hazard” did not exist. Additionally, horizontal separation of less than 500 feet in a Fire Traffic Area (FTA) is not uncommon especially when a “virtual fence” is utilized and positive communications are maintained to include visual separation.

In his book, “Managing the Risks of Organizational Accidents”, James Reason discusses the concept of “accident trajectory” which simply stated is an action passing through holes in layers of defenses, barriers and safeguards.

Holes included:

1. A faulty transponder (10-0731) rendering the ASM TCAS system useless in this instance to increase their situational awareness.
2. Non effective communications to other FTA aircraft of ASM intention to go low level.
3. Not recognizing that during the “wind down” the HT could have been utilized to recon the flare-up mitigating the need for a low level pass. Note: the ASM crew felt that based on the fact that the HT was two drops away from a fuel cycle, it was better to leave them on task working with the crews rather than divert for the intel.
4. Complacency

Defenses, barriers and safeguards included:

1. Establishment of the virtual fence.
2. Strong working relationship – cohesion amongst the flight crews.
3. Awareness of ground personnel and a willingness to point out based on their perspective a situation which shouts watch out.

The following excerpts from the “Aviation Risk Management Workbook” serve as good reminders but are not necessarily mitigations ignored in this incident. They are however important to review so that our established mitigations are known and applied to avoid “holes.”

### **Aerial Supervision Assessment**

#### **System – Flight Operations**

##### Sub – system – Fire Operations

Exposure to terrain in low level environment – ensure high and mid level recon is completed prior to commencing low level flight. ASM – ATS assists ATP with aerial/ground hazard identification and instrument monitoring. Perform only pertinent radio communications

Operating in close proximity to other aircraft – conduct only pertinent communication with the ground. Maintain “eyes out” for hazards. ASM – ATS assists ATP with tracking other aircraft.

Reliance on technology: TCAS/TCAD – flight crew members spending too much time looking at things inside the cockpit instead of out.

Lack of situational awareness – proper rest, thorough briefing , use of TCAS/TCAD, use appropriate tactics, maintain comms with other AC/ground/disp. Utilize CRM.

### Sub – system – communications

FTA: Aircraft not complying with procedures – aerial supervision is trained and enforces FTA procedures. Utilize virtual fences, IP's, quadrants, etc...

### Sub – system – Human Factors

Acceptance of risk as normal – validate mission, solicit feedback from others, and reevaluate risk vs. benefit. Educate personnel on the hazards of normalization of risk and complacency.

### **Helicopter Assessment**

#### **Helicopter System – Aircraft**

### Sub-system – Maintenance

Lack of thorough documentation – Develop training for HEMG's on MEL, maintenance buzz words. Enhance awareness through training for HEMG's on when to call MI for assistance with contractor and maintaining equipment.