Risk Management in Action

Bridging the gap between safety and operations in fire and aviation.

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Retardant use and abuse

Hot on the heels of our first controversial discussion on the hazards associated with helimopping, (*http://www.aviation.fs.fed.us/riskmgt/ed1_Helimopping.pdf*) we turn our attention this month to another hot topic, the appropriate use of aerial delivered fire retardant. Make no mistake; this is a complex question involving not only safety, but also economics, public perception, peer pressure, communications and the appropriate role of government oversight. In short, it's a perfect topic for a risk management discussion.

Let's begin by re-emphasizing the obvious point that aviation exists to support the ground firefighter. But *how and when* this support should be provided brings many differing opinions. Consider the following quotes on retardant use from current fire and aviation personnel.

"I watched the fire burn downhill though the rain of retardant and they just kept laying it on – it was a waste of time and money."

"The aviators don't always understand what we are trying to do. Sometimes we are just trying to slow the damn thing (fire) down a bit, so we can move some ground troops to deal with it."

"It wasn't doing much good but they had to do something with all the media attention on this fire . . . a classic example of public relations fire-fighting."

"I just put it where they tell me."

There is a classic psychological study about eleven men viewing an elephant from different close in perspectives. Although they are looking at the same animal, they see eleven completely different pictures. Until they get together and talk - *no one has an accurate picture of what they are looking at.* I suspect that it is much the same with the risks involved with fire retardant drops and effectiveness – no one truly sees the big picture until they have all the inputs. In reality, we seldom if ever get all the inputs. Communication is the key here. Let's begin by identifying some significant risks involved in airtanker operations against wildfire, one of the most challenging and demanding tasks in all of aviation.

Our airtanker pilots are some of the most dedicated pilots on earth. They fly under extreme conditions in vintage aircraft for less than half of what their colleagues in the major airlines make. These men and women are extremely mission oriented, and we need to keep this in mind before we make a request that will put them in harm's way. Everyone, including ground firefighters, ATGSs, lead planes/ASMs, and tanker pilots, must make hazard identification and risk assessments before anyone can make adequate risk control decisions. What processes do we currently use to insure this occurs on each and every fire?

Hazard Identification: What are the high-risk scenarios?

There is good news and bad news here. The good news is that the airtanker mishap rate has been coming down significantly over the past two years. The bad news is that fixed-wing airtankers still have the highest mishap rate in the fire environment by a large margin. An analysis of mishaps from 1976 to the present reveals one particularly high-risk scenario: high winds or low visibility coupled with rugged terrain. Here are a few examples taken from 1990 to the present:

Fatal mishap: Airtanker was in 60 degrees of bank turning towards the drop site. The bank suddenly increased to 90 degrees and the aircraft struck the ground. High winds and turbulence reported in the area.

Fatal mishap: Winds were gusting to 18 knots when the airtanker crew dropped water on a steep slope. The aircraft encountered dense smoke. One wing struck trees and the airplane hit the ground.

Fatal mishap: The crew extended flaps and landing gear to control airspeed while descending into the canyon. During the pull up, the airtanker collided with terrain.

Risk Controls: "Right tool" approach and aggressive air supervision

Operational risk decisions should be made methodically after assessing the risks and analyzing possible control measures. The interagency aviation triangle below reminds us that after careful consideration of safety and cost effectiveness, the right tool can be selected to perform the required task. Don't be hard-wired to call in the airtankers when the job might be accomplished in a safer and more cost effective fashion with other assets. Also, keep in mind that as conditions change, particularly with regard to winds and visibility, you may want to re-evaluate the current approach. If what we are doing is not effective in controlling the fire, we need to ask (ourselves and each other) – why are we accepting the increased risk of unnecessary aircraft and crew exposure and wasting tax dollars?

Perhaps the best decision making tool available for this purpose are the aviators themselves. Experienced ATGSs, leadplane/ASM pilots, and airtanker crews spend their careers making and evaluating the effectiveness of air delivered retardant. They are in the best position to know when and where it is safe and appropriate to use this tool. However, aviators are often hesitant to speak up and question the actions or decisions of other aviators, and this can seriously degrade any risk management effort that relies on multiple perspectives and inputs. As a rule of thumb, "if you see something, say something" and take care of any ruffled feathers after everyone is safely back on the ground.

Retardant is a superb tool when used appropriately. Consider the following example that was faxed in earlier this year from an operations coordinator in Florida.

We had already lost one occupied residence and two mobile homes upon the arrival of the air attack and lead plane (and tanker) . . . the fire was approaching another twenty or more homes. I did not think we were going to be able to stop the fire. The pilots, in essence, had to thread the needle between the fire and endangered homes. They completed this with the utmost of professionalism and made the drop in the exact location . . . stopping the fire and saved in excess of twenty homes."

A tip of the hat to the professionalism of our airtanker and air supervision fleet. They are an irreplaceable asset to our operations. Let's keep them safe through effective utilization and sound risk management.

Risk Management 101

Risk management doesn't get in the way of doing the mission – <u>it is the way we do the mission</u>.

Step 1. Identify the hazards. Make this a mandatory step in your daily decision making routine.

Step 2. Assess the risk levels. Exposure time x probability of hazard occurrence = Risk

Step 3. Analyze control measures. Limiting exposure is almost always an option.

Step 4. Make control decisions. Make certain the right person with good information makes the tough calls.

Step 5. Implement risk controls. Deliberate actions designed to get the job done safely.

Step 6. Supervise and review. Stay on top of the situation, and adjust risk controls as necessary.