AIRBORNE PUBLIC SAFETY ASSOCIATION

The Safety Wire

September 2020

It's not 100% effective...

Lately, we have been hearing quite a bit about how we should or should not be using one safety precaution or another for everything from COVID-19 to hurricanes to forest fires. I have no desire to wade into the specific effectiveness of any of them. However, I do want to discuss a comment I've heard repeatedly in one form or another, "there's no guarantee it will work." There never is. If we use this as a legitimate excuse to shoot down every safety precaution, we would have none. It is an easy argument to make if we want to avoid doing anything we do not feel like doing. In our line of work, this does give us a guarantee: something bad will happen that we could have prevented with a good, yet imperfect, safety precaution.

A better question to ask is, "What is the probability of success?" The business world uses probability of success calculations to determine investments and product development. One report found that only 15% of new product releases are fiscally successful. Even with that low of a probability of success, businesses will advance these projects because new product releases account for a significant amount of the overall profit for many companies. In the pharmaceutical industry, expensive testing is initiated on new medication when, on average, there is approximately 60% probability the product will achieve government certification. The final product will be presented for final approval with an average probability of success of only 89%.

While these examples are driven by profit, we need to be concerned with injury to personnel and damage to equipment in often hostile environments. Colin Powell advised leaders that if you wait for 100% probability, you will be too late. He said to act in the 40% to 60% range. Other industries generally suggest looking for 60% - 80% probability before moving ahead on a plan. A key idea in accepting the reality of imperfection is to avoid relying on a single plan. When we are looking to mitigate any risk, try to think of two different ways you can attack the problem. This will increase your overall effectiveness as the two different plans will overlap each others' weak points.

So how can we calculate our probability of success? The APSA SMS Installation Guide has a hazard tracking and planning tool. That tool includes a page that will help you with this calculation. A summary is shown below.

"There are two critical points in every aerial flight: its beginning and its end."

~Alexander Graham Bell 1906

SMS Techniques

Probability of success calculations do not need to be difficult. A few minutes of planning can give you a clearer understanding of how effective a proposed risk control will be. In the process, you will also see the weak points in the plan, giving you opportunity to increase the plan's potential effectiveness. Answer the following questions with a number 1–5, with 5 being the highest. Take your final score and multiply it by 2 for your probability of success.

CATEGORY	SCORE (1-5)
At least one person has worked on a similar control in the past or has the training required to implement the control.	
A similar control has previously been successfully implemented at the unit.	
The estimated funding required for the program is available (initial and ongoing costs).	
The required personnel resources are available.	

Contractor or training resource has been identified and budgeted for, if applicable.	
Time required for control design, initial implementation, training and impact on day-to-day schedule has been allotted for.	
Control measure has a direct effect on hazard.	
The control being implemented has both training and policy/procedure elements.	
Personnel roles and responsibilities have been defined and assigned.	
A reasonable means of tracking the performance of the control has been established.	
PROBABILITY OF SUCCESS (Total x 2):	XX%

ONLINE MEETINGS

APSA conducts regularly scheduled online meetings for safety officers, maintenance technicians, SAR personnel, and UAS operators via a conference call you can join using your computer, mobile device or phone. Online meetings are open to any APSA member. Contract maintenance providers to APSA members are welcome to participate in the maintenance meeting as well. If you would like to join, send an email to: safety@publicsafetyaviation.org

The schedule for upcoming APSA online meetings is as follows.

Safety Officers:
Friday, October 23, 2020
12:00 PM - 1:00 PM EDT (1600 UTC)

Maintenance:
Wednesday, November 4, 2020
1:00 PM - 2:00 PM EST (1800 UTC)

SAR:
Wednesday, November 11, 2020
1:00 PM – 2:00 PM EST (1800 UTC)

UAS:
Wednesday, November 18, 2020
1:00 PM - 2:00 PM EST (1800 UTC)

RESOURCES

NTSB Snow and Ice Safety Alert
https://www.ntsb.gov/safety/safety-alerts/Documents/SA-082.pdf

FAASTeam Newsletter
https://www.faa.gov/news/safety_briefing/2020/media/SepOct2020.pdf

ATSB Aerial Firefighting Safety Analysis
https://www.atsb.gov.au/publications/2020/ar-2020-022/

EMERGENCY PROCEDURE OF THE MONTH

In each monthly emergency situation, discuss what you would do, as a crew, to respond to the following emergency. If the EP does not apply to your specific aircraft, think of something similar.

Passenger/crewmember having medical emergency in-flight

"You are professionals trained to deal with three things that can kill you:

gravity, combustion, and inertia.

Keep them under control, and you'll die in bed."

~Sailor Davis - TWA

Reality Check…

Note: *The following reports are taken directly from the reporting source and edited for length. The grammatical format and writing style of the reporting source has been retained. My comments are added in red where appropriate. The goal of publishing these reports is to learn from these tragic events and not to pass judgment on the persons involved.*

Aircraft: AS 350 B2
Injuries: 3 Fatal
NTSB#: CEN18FA149

https://app.ntsb.gov/pdfgenerator/ReportGeneratorFile.ashx?EventID=20180427X55413&AKey=1&RType=Final&IType=FA

The initial report for this accident was included in a previous newsletter. However, the findings in the final report warrant a second look.

The helicopter pilot and two emergency medical service crewmembers were on a repositioning flight in night visual meteorological conditions after two helicopter air ambulance flights and a refueling stop. The total flight time for the first three flights was 94 minutes and occurred over a period of about 2 1⁄2 hours.

The helicopter departed on the accident flight about 2107. About 1 minute later, the pilot asked the crewmembers whether they were "alright." One crewmember responded "yup" and then asked the pilot, "question is are you alright up there?" The pilot responded, "uhhh think so. Good enough to get us home at least." There was no further discussion related to fatigue. During the flight, the pilot adjusted his seat position and flexed his legs, which were actions consistent with signs of fatigue. Also, although the pilot participated in the medical crewmembers' conversations in the middle of the flight, he did not participate in their conversations near the end of the flight. During the last portion of flight, the helicopter entered a progressively steepening right bank, and the pilot did not respond as the medical crewmembers shouted his name. The helicopter descended and became inverted, and the pilot continued not to respond as the crewmembers' shouted his name.

After the helicopter began to roll to the right, the pilot slumped to the left, appearing incapacitated. There was no evidence indicating that the pilot was suffering from a medical condition that could have caused his incapacitation. There was also no evidence of poor quality or quantity of sleep; the pilot's wife reported no issues with the pilot falling asleep or staying asleep, and cellular telephone records and his wife's interview indicated adequate sleep opportunity in the days preceding the accident.

This accident shift was the pilot's first after returning from a week-long vacation during which his circadian rhythm would have had him sleeping. Further, the environment created by the helicopter vibration, darkness of night, and few operational demands during the cruise phase of flight would have increased the pilot's fatigue and the body's

biological desire to sleep. These factors, along with the pilot's movements observed on the image recorder, indicated that the pilot became fatigued during the flight. Thus, he pilot likely fell asleep during the flight as a result of the time of day, his time since awakening, and the fatigue-inducing effect of the 1 1⁄2 hour flight.

The National Transportation Safety Board determines the probable cause(s) of this accident to be: The pilot's loss of helicopter control as a result of fatigue during cruise flight at night.

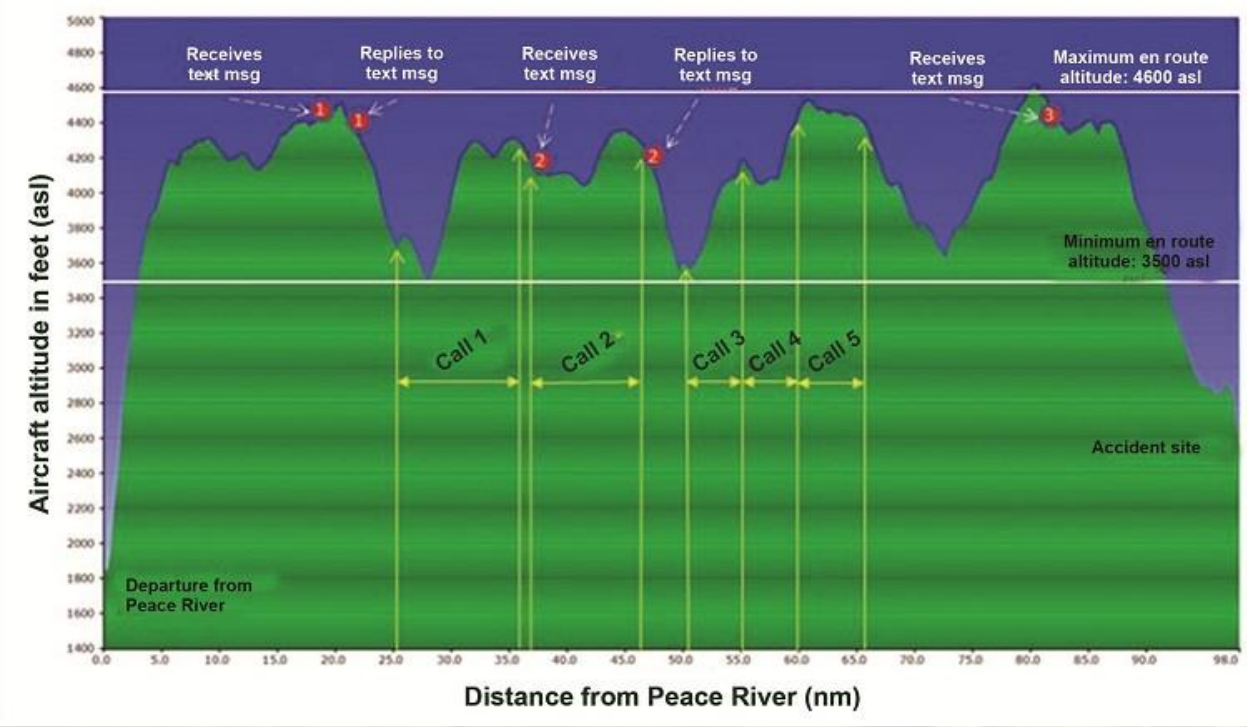
Aircraft:	**Cessna 185E**
Injuries:	**1 Fatal**
TSB Canada#:	**A11W0180**

https://www.tsb.gc.ca/eng/rapports-reports/aviation/2011/a11w0180/a11w0180.html

The pilot departed at 1706, reporting westbound at 4500 feet above sea level (asl). Between 1719 and 1755, the pilot engaged in 2 text message exchanges and conducted 5 voice cell phone communications totaling 28 minutes. The pilot received a final text message at 1806, 11 minutes before the accident.
At 1807, C–FXJN was 26 nm east of Fort St. John Airport at 4400 feet. At 1809, 23 nm east of the Fort St. John Airport, the aircraft began a gradual descent of approximately 170 feet per minute, with a ground speed of 90 knots. (Ground elevation was approximately 2400 feet asl at the accident site.)

From 1815 to 1816, the pilot momentarily leveled off at 2900 feet asl, 15 nm east of the airport, before resuming the descent. The descent continued uninterrupted until the last radar contact at 1817, 12 nm from the airport at 2400 feet asl.

The occurrence flight was the pilot's first flight with the company in 30 days. At this time the total flight time accumulated for the day was approximately 7.1 hours. In the events leading up to this occurrence the aircraft experienced several large altitude deviations while the pilot was using the cellphone.



The occurrence flight was over sparsely settled terrain at night, where the absence of visual reference or cues would deprive the pilot of context as to the position of the aircraft relative to the ground. This would have created a black–hole effect as the pilot approached the Fort St. John Airport.

The aircraft had experienced several large altitude deviations while the pilot was using his cellphone. While it did not appear that the pilot was actively engaged in cell phone communications during the last 11 minutes of the flight, this distraction was prevalent throughout the flight and in conjunction with the night conditions encountered, may have contributed to the CFIT event.