AIRBORNE LAW ENFORCEMENT ASSOCIATION

The Safety Wire

May 2014

WILL IT WORK IN THE REAL WORLD? Often in the world of safety management, there is a gap between academics and daily operations. Some things look good on paper, but when we bring them to the flight line or the maintenance bay the need for some 'adjustments' quickly becomes apparent. The valley between safety planning and actual operations is bridged by experience. One problem with this is that when safety is done right, nothing bad happens. The effect of risk management on smooth running operations can go unnoticed because of the lack of exciting, memorable stories. This leaves us to focus only on those instances when risk management fails, causes disruption in operations or is not utilized properly (if at all). The success stories go unnoticed, and so do some of the best lessons learned. This is why the Risk Assurance aspect of an SMS is so critically important. We need to verify that the safety program is working, not assume it is based on the number, or absence, of accidents. Some elements implemented will not work as planned and need to be adjusted or changed completely. Whether they work or not, analysis of how various risk management components interface with the real world is key to learning the most important lessons in safety. In the spirit of learning these lessons, I have included a synopsis of an incident below where risk management lead to a truly terrific and memorable outcome.

The benefits of scientific inquiry, or any form of exploration, cannot always be known when the first steps are taken.

~John Glenn

From the Trenches

Last year, an aircrew from the Fairfax County Police Helicopter Division completed a fantastic mission, which won them the ALEA Captain "Gus" Crawford Memorial Air Crew of the Year Award. The details of the mission have been covered, but in speaking with the unit's Safety Officer, Andrew Edgerton, there was a risk management aspect of it that we can all learn from, as well. The mission involved searching for two young boys missing in a wooded area on a very cold day, which was forecast to get worse as a storm was approaching. This was a mutual aid request from another county, as well. The initial response to the request, based on safety concerns, was denied. After the flight crew completed a Flight Risk Assessment Tool (FRAT), the decision was made that the flight could be conducted with an acceptable level of risk.

….let me repeat that…the denial to launch was reversed only AFTER the FRAT had been completed and a better picture of the risks, and mitigations was made.

The crew sat down with all of the information available and discussed:

- ✓ Weather, including the forecast at mission site and home base, and estimated time on station before exceeding unit weather minimums.
- ✓ Alternate landing sites (both on and off airport) in the area of the mission in case deteriorating weather required they land instead of returning to base.
- ✓ Fueling options in the area.
- ✓ High level of familiarity between crewmembers involved in the mission.
- ✓ Previous experience and personal familiarity with location.
- ✓ Terrain (not mountainous), obstructions and landmarks in the area.

- ✓ Time of day.
- ✓ The fact that contact and radio communications information for the mission was complete, including GPS coordinates
- ✓ Providing communications center with destination location, ETE and route of travel to be used for flight following and in the event of an emergency.

These and other factors were considered, as a crew, using a FRAT. Any one of the three crewmembers could have made a 'no-go' decision. They also made it clear that due to the nature of the call, it was important to follow these steps to make the right decision. In the end, there was still risk involved in the flight. The difference was that they understood those risks, mitigated what they could, and as a crew were all operating on the same page.

This is an excellent example of using risk management the right way. Not only did the process keep the aircrew safe, but it also saved two young boys who very likely would have perished in the snow that night had the aircrew accepted the uninformed decision not to launch.

Computers are useless. They can only give you answers.

~Pablo Picasso

Aeromedical Safety

Dudley Crosson, PhD, ALEA Aeromedical Liaison

You've heard the stat before… four out of five aviation mishaps are the result of a human causal factor. However, it might surprise you to learn that across nearly every high-risk industry, ranging from offshore oil drilling to medical surgery, the mishap rate due to human error is every bit as high as it is in public safety aviation.

Interestingly, a vast majority of these commercial industries has placed an alarmingly heavy emphasis on "classic"

engineering disciplines such as civil and mechanical engineering with regards to accident prevention. However, less emphasis is placed on those engineering disciplines more closely aligned with safety and prevention. For example, a recent review of many of the top engineering schools in the country found that the vast majority of these schools did not even require their students to take a single safety course.

Most ASO (Aviation Safety Officer) training programs have adopted a curriculum that focuses on the human element in each of its respective disciplines. Whether the topic area concerns human-factors or Aeronautical Decision Making, the focus is on the development of tools and techniques at the unit or squadron level to mitigate the risks associated with human factors. There appears to be some agreement among the military service safety schools as well. For example, the U.S. Army, Navy and Air Force provide only survey level introduction to concepts such as aerodynamics and structures in relation to safety. Rather, the primary focus of these schools is on human factors and safety programs.

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Do what you can, with what you have, where you are.

~ Theodore Roosevelt

Practical SMS

I often have conversations with folks in our industry that include some version of the statement, “Okay, I want to have a Safety Management System…where do I start?” I recently had this conversation with the IHST/USHST SMS committee members and would like to pass on our general consensus. First, start with a gap analysis. This involves looking at a set of standards and seeing what your organization already has in place, and what ‘gaps’ need to be filled in. You will likely be surprised to find that you already are able to check off many of the boxes. There are sample documents out there. If you just Google ‘SMS GAP analysis’ you will find several. As always, the content in documents designed for other types of operations will be only

partially applicable to public safety operations. So where is a good place to start? The Public Safety Aviation Accreditation Commission (PSAAC) standards. They can be downloaded on the ALEA website here: www.alea.org/accreditation

Which standards should you look at? All of them. Remember, this is a Safety Management System, every aspect of your operation is part of it. Also, don't assign this only to the safety officer. Have someone from each section of the operation (maintenance, training, etc.) fill out their section as well so the safety officer can compare results. In June we will discuss the next step.

We will discuss this concept and other safety related topics at the next Safety Officer Mutual Aid online meeting on June 20th at 1300hrs EDT (1700z). If you are not on the mailing list and would like to participate, send me an email.

Additional GAP Analysis tool:
http://www.casa.gov.au/wcmswr/_assets/main/sms/download/2012-sms-book2-safety-policy-objectives.pdf (Pages 27-31)

ALEA EXPO 2014
PHOENIX, AZ | JULY 16-19

ALEA EXPO 2014 in Phoenix is less than two short months away. During the expo, there are two safety related pre-conference courses I would like to mention. The Aviation SMS and Human Factors Course will again be offered. It is a highly recommended course for anyone working on aviation safety. The instructor, Craig Geis, is an expert in the field of aviation safety and has been teaching for ALEA for 14 years.

We will also be offering the Aviation Safety Officer Course, which expands on the concepts presented in the SMS course. The ASO Course covers all aspects of the aviation safety officer's duties and responsibilities.

Hope to see you there!

http://www.alea.org/events/annual-conference/attendees

Controlled Flight Into Terrain (CFIT) following Inadvertent entry into Instrument Meteorological Conditions (IIMC) continues to be a serious threat in our industry.

Please, take 55 minutes to watch the online presentation ALEA has put on the website. It is free. It could save your life. Then take a look at the IIMC training recommendations that compliment the presentation.

https://live.blueskybroadcast.com/bsb/client/CL_DEFAULT.asp?Client=514630&MA_ID=68631

http://www.alea.org/assets/cms/files/safety/IIMC%20Training.doc

"MAN – A creature that was created at the end of the week when God was very tired."

~Mark Twain

Reality Check...

Aircraft: BK117
Injuries: None
NTSB Identification: ERA11LA106
http://www.ntsb.gov/aviationquery/brief.aspx?ev_id=20110105X95224&key=1

At 0223 Eastern Sandard Time, a Eurocopter BK117-C2, was landed hard during an emergency landing after the pilot became partially incapacitated.

The helicopter was enroute to Carteret General Hospital, night visual meteorological conditions prevailed and a company visual flight rules flight plan was filed. The certificated airline transport pilot suffered a medical incapacitation and the two medical

flight crewmembers were not injured. The helicopter sustained substantial damage including the landing gear cross tubes.

According to an interview, the pilot reported that they were "about two-thousand feet and about three to four minutes out" from the destination. He was flying the helicopter utilizing the autopilot and shortly after "I disengaged the autopilot, my right arm fell to my side." He informed his medical flight crewmembers as well as the Air Traffic Controller and declared an emergency. A medical crewmember seated in the left front seat manipulated the collective control with the pilot's instructions and the pilot manipulated the cyclic control with his left hand. The pilot elected to make a run on landing and upon contact with the runway, the helicopter became airborne again, and then touched down again.

According to a written statement provided by the secondary nurse seated in the left front seat, the flight had been a very smooth and uneventful flight. They were at 2,600 feet and preparing for descent into the hospital landing zone when the pilot stated that "he could not move his right arm." The pilot reported that he did not have any other symptoms or weakness but "his speech was becoming a bit slurred." During the flight to NKT, the pilot had requested assistance from the secondary nurse. As the flight approached the airport, the nurse reported that the main runway was lit and they had been given directions to it. She further reported that even though she pointed towards the airport the pilot was unable to identify the runway and the flight subsequently flew over it. The controller vectored the helicopter back to the airport and the pilot subsequently acquired the airport. After landing, the primary flight nurse exited the helicopter to assist the pilot with the engine shutdown procedure. Emergency personnel that responded to the scene assisted the pilot out of the helicopter onto a stretcher for transport to a local hospital.

Aircraft: Beech B200
Injuries: 1 Fatal, 4 Uninjured
NTSB Identification: ERA09IA240
http://www.ntsb.gov/aviationquery/brief.aspx?ev_id=20090413X62630&key=1

A Beech B200 [King Air] was landed uneventfully by a pilot-rated passenger following cardiac incapacitation of the pilot shortly after takeoff.

The airplane owner, who is a certificated private pilot with airplane single engine land rating, was in the co-pilot's seat for the incident flight. The pilot assisted with loading baggage and the owner stated he did not notice anything wrong with him. Additionally, the pilot did not mention having any physical problems.

Safety Board review of a voice tape from Miami Air Route Traffic Control revealed the pilot established contact with the facility, and the controller cleared the flight to climb to 14,000 feet mean sea level (msl). The pilot did not respond to the clearance from the controller. Approximately 20 seconds later, the owner, who was seated in the co-pilot’s seat, declared an emergency, advising the controller of the pilot’s incapacitation and the need to speak with someone familiar with the B200 airplane.

The owner later stated that approximately 1 to 3 minutes after completion of the climb checklist, while flying between 5,000 and 6,000 feet msl, he noticed the pilot's head was down and both hands were at his sides. The owner attempted to get the pilot's

attention but he made an audible sound which increased in intensity, and the pilot's right hand fell off his thigh. The pilot did not make any further sounds.

Further review of the voice tape from Miami ARTCC revealed the flight continued on a northerly heading climbing to approximately 17,300 feet msl. Another Miami ARTCC controller talked the owner through the process of disengaging the autopilot, descending, and heading changes. Air traffic control communications were then transferred to Fort Myers Approach Control. Review of voice and radar data from Fort Myers Approach Control revealed the controller provided information to the owner regarding the landing gear, flaps, power levers, and airspeed settings. The flight was vectored for a 15–mile-long final approach for runway 6 at RSW, and the airplane was landed uneventfully. The owner taxied onto a taxiway where the engines were secured and medical personnel were standing by.

**AOPA has a great video of the incident, including ATC tapes and an interview with the passenger.* http://flash.aopa.org/asf/pilotstories/pinchhittingkingair/

Aircraft: Bell 206L
Injuries: 1 Fatal
NTSB Identification: DFW06IA145
http://www.ntsb.gov/aviationquery/brief.aspx?ev_id=20060605X00682&key=1

A Bell 206L-3 helicopter land[ed] on offshore platform Grand Isle 43AA. A few minutes after landing, ground personnel at the platform found the pilot, sole occupant of the helicopter, unconscious. Resuscitation attempts made by an on-site medic and personnel at a local hospital were unsuccessful.

A company spokesman stated that the pilot landed in the center of the helideck, which was unusual because pilots normally land the helicopters to the side of the helideck in order to allow another helicopter to land on the same pad, if needed. Approximately 5 minutes after landing, the company dispatcher went outside and noticed the helicopter was still running, with the pilot leaning over the flight controls. The on-site medic was notified, and after arriving to the helicopter, found the pilot in full arrest.

After the pilot was removed from the helicopter, an employee called operations to receive instructions on how to shut down the engine on the helicopter.

The 15,563-hour pilot had been employed by PHI since May 29, 1979. He was reported to have accumulated a total of 7,812 hours in the Bell 206 helicopter. Taped recordings of his conversations with the PHI communication center on his last takeoff and landing were reported to be normal.

The autopsy concluded that the cause of death was atherosclerotic cardiovascular disease, with coronary insufficiency. Manner of death was considered to be natural.

Aircraft: Cessna 210C
Injuries: 4 Fatal
TSB Canada Identification: A13C0014
http://www.tsb.gc.ca/eng/rapports-reports/aviation/2013/a13c0014/a13c0014.asp

At approximately 1230 Central Standard Time, the Cessna 210C departed a private airstrip with a pilot and 3 passengers on board for a flight in the local area. At 1300, approximately 30 minutes after departure, the local weather deteriorated rapidly and fog rolled in over the private airstrip and surrounding area. An emergency locator transmitter (ELT) signal was reported to Winnipeg Area Control Centre at 1317 by an over-flying aircraft. A call was made to the Joint Rescue Coordination Centre (JRCC) at approximately 1610 to report the overdue aircraft. A search and rescue (SAR) aircraft tracked the aircraft's ELT signal and located the aircraft at 1750. SAR technicians were deployed into the accident site and found that all occupants had suffered fatal injuries.

Note the time delay in searching for and finding the aircraft. Do you have an Emergency Response Plan?

Although aware of the reported poor weather in the area, the pilot wanted to get some more flight hours on his new aircraft and considered that the local weather was suitable for a visual flight rules (VFR) flight. The pilot held a commercial pilot licence (CPL) valid for single-engine landplanes. The pilot did not have an instrument rating endorsement. The pilot's total flight time was approximately 5890 hours, flown mostly during the summer as an agricultural spraying pilot. The pilot had accumulated approximately 265 hours in the last 12 months.

Inadvertent flight into IMC and loss of control

Transport Canada has published many articles concerning whiteout and flight into IMC with no instrument rating endorsement. The information available concerning inadvertent flight into IMC by unqualified pilots and the inevitable outcome is widely available, in documents such as Transport Canada publication number TP 2228E-1, Take Five for Safety, 178 Seconds.

Analysis

The meteorological conditions at takeoff were VMC, but some areas of IMC were forecast. The snow-covered terrain, combined with the meteorological conditions, was conducive to whiteout. In whiteout conditions, the snow and fog would blend together, and under these conditions, the pilot would not be able to fly using visual references.

In the absence of a visible horizon, the pilot likely experienced spatial disorientation, particularly if he initiated a turn to avoid the deteriorating weather.

The procedures to confirm the validity of the 121.5 MHz ELT signal received by the overflying aircraft had to be initiated because of the high false alert rate of the 121.5 MHz ELT. Under these circumstances, it took about 2 hours and 53 minutes before SAR personnel could be deployed. The use of a 406 MHz ELT, with its point-of-contact information, might have reduced the response time.

http://www.tsb.gc.ca/eng/rapports-reports/aviation/2013/a13w0070/a13w0070.asp

As always…
If you would like to be a part of this process, please contact me.
If you have a story to tell or a lesson to pass on, send it to me.
If you like what you see happening with the program, I would like to hear from you.
If you want to see something different, or additional…I NEED to hear from you!

Until the next flight,

Bryan 'MuGu' Smith

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