



Report to the Minister of Justice and Solicitor General Public Fatality Inquiry

Fatality Inquiries Act

WHEREAS a Public Inquiry was held at the _____ Court House
in the _____ Town _____ of _____ Stettler _____, in the Province of Alberta,
(City, Town or Village) (Name of City, Town, Village)
on the _____ 19th _____ day of _____ August _____, _____ 2014 _____, (and by adjournment
year
on the _____ 20th _____ day of _____ August _____, _____ 2014 _____),
year
before _____ James A. Hunter _____, a Provincial Court Judge,
into the death of _____ Dean Edward Sorken and Lee Merlyn Sorken _____ 44 and 39
(Name in Full) (Age)
of _____ Abbotsford, B.C. and Vernon, B.C. _____ and the following findings were made:
(Residence)

Date and Time of Death: _____ June 3, 2011 at 11:00 P.M. _____

Place: _____ near Bashaw, Alberta _____

Medical Cause of Death:

("cause of death" means the medical cause of death according to the International Statistical Classification of Diseases, Injuries and Causes of Death as last revised by the International Conference assembled for that purpose and published by the World Health Organization – *The Fatality Inquiries Act*, Section 1(d)).

Multiple blunt injuries

Manner of Death:

("manner of death" means the mode or method of death whether natural, homicidal, suicidal, accidental, unclassifiable or undeterminable – *The Fatality Inquiries Act*, Section 1(h)).

Accidental

Circumstances under which Death occurred:

See attached

Recommendations for the prevention of similar deaths:

See attached

DATED September 18, 2014,

at Red Deer, Alberta.

Original Signed By

James A. Hunter
A Judge of the Provincial Court of Alberta

Dean and Lee Sorken Public Fatality Inquiry

Circumstances

[1] On June 3, 2011, Dean Sorken and Lee Sorken were killed in an airplane crash near Bashaw, Alberta. The Fatality Inquiry was held on August 19 and 20, 2014, in Stettler, Alberta. The Inquiry heard from three witnesses:

- (1) Raymond Kirby – Regional Manager for Transport Canada
- (2) Mike Tomm – Transportation Safety Board Inspector
- (3) Gordon Welsby – highly experienced pilot and flight instructor/examiner

[2] Kevin Sorken, the brother of the deceased, took part in the Inquiry but gave no evidence.

[3] Dean Sorken was the owner of a 1966 single engine Mooney aeroplane. He had obtained his pilot licence in March of 2008. He had at the time of the crash approximately 500 hours of flying time. His licence was rated for Visual Flight Rules (VFR) and night and seaplane ratings. He was not rated as VFR Over The Top (OTT) or on instruments.

[4] Lee Sorken had his private pilot licence from May 2007 and a helicopter licence from February 2007. He was endorsed for the helicopter and single engine planes. His flying time was unknown.

[5] Mr. Kirby gave evidence as to training and licencing procedures in Canada for private pilots. He described the various ratings available to a pilot. A pilot with a VFR rating is only allowed to fly when they can see the ground and the horizon. He explained that a pilot uses the ground and the horizon as references when flying to orient themselves in the air. Flying is not a natural part of human behaviour and our brains and body function differently in the air and require reference points, ie. the ground and horizon. To obtain a night rating requires additional training because of the challenges associated with having to reference the lights on the ground and not the ground itself as in daylight flying. It is also difficult at night if there are clouds.

[6] VFR OTT is a very specific rating that allows a pilot to fly over cloud cover. The rules are however very clear that the airport of takeoff and that of landing must be clear. OTT rating does not allow descent through cloud cover or for a pilot to fly into it. To get this rating requires additional ground school, exams, flight training and flight testing. To achieve nighttime OTT, the pilot must have a certain level of experience and a properly qualified flight instructor must give this rating.

[7] To achieve an instrument rating there is much additional training required, as flying using only instruments is, from the testimony of all witnesses, a difficult process. All pilots in initial training receive a few hours of instrument training, but only to give them a taste of this. It is by no means a qualification to fly by instruments.

[8] Mr. Kirby also indicated that pilots are required to meet recency requirements to make sure they are competent and current in their training and to maintain their skill. It became readily apparent from Mr. Kirby and from the other witnesses, and from the volume of rules and regulations, that both becoming a pilot and maintaining a pilot's licence is a highly regulated and highly governed activity.

[9] Once a person has achieved their pilots licence, they are qualified to fly. Pilots must put their training and skill into effect in planning and managing their flights. The pilot is responsible for checking the weather, flight paths, navigation, fuel management and all other decision making respecting a flight. Most importantly, the ultimate decision as to whether to attempt a flight is in the pilot's hands.

[10] On June 3, 2011, the Sorken brothers were to travel to Killam, Alberta, to attend a family wedding. Dean Sorken left Abbotsford, B.C. in the early afternoon heading to Vernon, B.C. to pick up Lee Sorken. Enroute he got a weather briefing and was told that a flight from Vernon to Killam was unlikely due to marginal VFR conditions and heavy overcast with no reliable breaks in the cloud. Dean Sorken inquired about other routes and was advised that most of Alberta was cloud covered, with rain in areas. The next morning may have cleared somewhat, but only further north.

[11] Lee Sorken, while in Vernon, also obtained a weather report. He too was advised that the flight planned was not likely due to marginal VFR conditions east of the Rocky Mountains. He was advised of heavy cloud cover and overcast and told that the next day did not look much better with the possible exception of clearing further north the next day.

[12] Dean arrived in Vernon around 2:45 p.m., was refuelled and the brothers left Vernon approximately 0300. Dean Sorken filed his VFR flight plan with Pacific Radio for a two hour flight at 15,000 feet above sea level. At 0320:36 Dean Sorken requested Area Control Centre to clear him to 15,000 feet. This was approved. At 0351:10 Sorken requested clearance to go to 17,000 feet above sea level. This was approved and the flight maintained this altitude until descent. Given the weather conditions, Mr. Sorken would have been flying over a cloud layer.

[13] While flying to Killam, both Dean and Lee Sorken texted their brother Kevin. Of the 20 text messages sent, 15 were related to weather conditions and trying to confirm that there were breaks in the cloud cover that would allow him to descend in safety. In one text at 7:07 p.m. (it should be noted that the times of the text messages are on the 12 hour clock, while times noted in official reports are based on an aviation time clock. Dean Sorken was airborne at Vernon at approximately 6:19 p.m. MST). Dean acknowledges bad weather and says that he will come over the top. The text messages from Kevin Sorken indicate there are breaks in the clouds and visibility for miles.

[14] The flight, from the information received was straight and level with no concerns reported except the texts involving weather.

[15] At approximately 9:54 p.m., Dean Sorken sent a final text regarding the weather to Kevin Sorken and then contacted the Air Control Centre (ACC) advising they were descending to 8,000 feet. He had not contacted ACC about the weather. The plane was at about 17,000 feet at 457:30 (aviation time). Approximately one minute later it passed 16,000 feet and entered a descending right turn passing 15,000 feet about 24 seconds later. The last radar return was 43 seconds after this with the plane descending through 9,000 feet above sea level. Witness reports were that at 0500 a loud bang was heard or very shortly after the last radar return. Some hours later the wreckage was found in a field about 0.5 nautical miles from the last radar report. Local emergency responders secured the site until Transport Safety members could arrive.

[16] Mike Tomm was the Transport Safety Board inspector tasked with investigating this crash. He has provided a thorough and detailed report included in the materials as Exhibit 6 Tab A. Mr. Tomm is a qualified pilot with Instrument Flight Rating and has approximately 5,800 hours of flight time. His role as an investigator is to look at the accident and report his findings. He cannot give opinion evidence as to the causes of the accident.

[17] Mr. Tomm advised that investigations are classed according to the seriousness and what, if any, information could be gathered that would improve public safety. Class 1 & 2 incidents would involve major airline crashes for example. This accident was at the Class 5 level, which meant the accident type had been seen before and there was nothing new to provide the public with safety information.

[18] On the date in question, Mr. Tomm arrived at about 9:10 a.m. and began his investigation. The details are contained in his report, but briefly the fuselage of the plane was found in a crater 7'9" deep with the wings of the plane accordioned on either side. All of the plane and parts of the plane were located within a short distance of the crater. The plane had impacted the ground vertically.

[19] Further investigation revealed that Dean Sorken was at the controls and Lee Sorken was the passenger. There was no evidence found of medical conditions such as lack of oxygen that may have contributed. Up to descent, all communications with Air Control were coherent and lucid, indicating the pilot was OK. Mr. Tomm reviewed all of the information from Air Control and the text messages sent. He also had access to the flight plan and radar track.

[20] The flight path to the start of the descent was normal. The plane started a right hand turn in descent. From the radar track at 9,000 feet and the short distance of ½ mile from that point to the point of impact, it is consistent with a steep vertical descent. Because all of the components of the plane were found in a relatively confined area, there would have been no inflight break-up of the plane.

[21] In addition, the fuel caps were found attached to the plane, which ruled out loss of fuel. A subsequent mechanical inspection of the engine and propeller indicated that the engine was producing power on impact and the shearing of the crankshaft indicates that the propeller was turning. The twisting of the blades themselves also indicated they were turning when the plane hit the ground. The attitude indicator on the plane was also working at time of impact. A further review of the maintenance logs and the engine log showed nothing to indicate any mechanical problems with the plane. There was nothing in his inspection to point to any concerns with air-worthiness of the plane.

[22] Mr. Welsby was the final witness. He has approximately 19,000-20,000 hours of flight times, both as a civilian and 35 years in the RCAF, both flying jet fighter aircraft and training and instructing military personnel. He is a qualified civilian flight instructor and a certified pilot examiner for Transport Canada. He has taught courses in Human Factors for Pilots at NAIT and has extensive experience with respect to not only the mechanical aspect of flying, but also the human side to flying. He too provided a detailed report on the flight, Dean Sorken's experience and his opinion as to the cause of this accident.

[23] Mr. Welsby used the Tomm report as background, but also researched and wrote about this accident. He did not at the time have access to the text messages sent by Dean Sorken, but on review, he saw no sign of pilot incapacity.

[24] Mr. Welsby reviewed the weather data provided and testified that he could not determine or fathom why Mr. Sorken thought he could fly into the prevailing weather conditions or why he decided to fly. In his view, the decision to fly was a bad one and should not have been undertaken. Welsby further looked at Dean Sorken's training and his experiences as a pilot to try and figure out why this flight was attempted.

[25] In Welsby's view, anyone with less than 1000 hours flying time is low experience. Dean Sorken had about 500, but only had about 5 hours on instruments. This in his opinion is very low and is the minimum required in flight training. Statistics Mr. Welsby has reviewed reveal that 90% of all aviation accidents involve relatively inexperienced pilots. In addition, Welsby's report details an incident on March 19, 2011 where Mr. Sorken got into thick cloud and had to rely on Air Traffic to steer him out of it and regain visual flight rules. In Welsby's opinion, this incident would have frightened most pilots away from every flying into heavy cloud. A further incident where Mr. Sorken ran out of fuel when flying to Killam indicated to Mr. Welsby that Mr. Sorken was a bold and aggressive pilot who was inattentive to detail.

[26] Welsby then reported on the human factors involved in flying. Both he and Mr. Kirby were clear that flying is not a natural state for humans and that being fit, healthy and well rested are extremely important factors in flying. Mr. Welsby referred to a Transport Canada publication called *Human Factors for Aviation*. This book and his personal experience indicate that pilots must be well rested, well fed and hydrated. There must further be no undue stress as it drives performance down, although a certain stress level is required to keep one actively aware and functioning in the air.

[27] Mr. Welsby, on review of Mr. Sorken's day, held out concern that Sorken had been rushing throughout the day to finish work and get the flight in. He also opined that Sorken would have had to be concerned with the weather, but a condition termed "get home-it is" would have also come into play. The need or perceived need to get somewhere, in this case the family wedding, convinces one to accept only the information that supports their course of action. In this case, Welsby opined Dean Sorken wanted to get to Killam and he ignored those factors that said he could not. In Welsby's view, he should have had a planned "out", such as travelling further east where weather was better.

[28] On review of the accident, Mr. Welsby confirmed his view that Mr. Sorken got into a weather situation that he did not have the skill to fly in. Both he and Mr. Kirby gave evidence that the body reacts very differently when the horizon is lost to the pilot and that reactions taken are often opposite and contrary to what should be happening and what should be safe. If the pilot does not have the skill to use and rely on his instruments, his body will begin to send signals that do not reflect the true situation. The brain and the natural equilibrium maintained could tell the body that the plane is going in one direction when it is actually going the other and the pilot may over correct to compensate. Confusion and disorientation occur very quickly. There is some training provided on instruments to give pilots a taste of this and there is some training designed to teach pilots to get out of turns or dives that may result.

[29] In Mr. Welsby's opinion, Dean Sorken lost control of the aircraft very quickly. The rapid descent far exceeded training and indicates that this was an uncontrolled dive almost instantly. Mr. Sorken had neither the skill nor the expertise to get himself out of the situation. The mechanical reports indicate that the throttle was fully out on impact. The first thing a pilot should do is close the throttle when in a dive. In Mr. Welsby's opinion, Mr. Sorken was fatigued, panicking, and not performing. In his final opinion, this accident was caused by human error.

[30] The evidence I have heard is very clear that there is extensive training in becoming a pilot and extensive rules and regulations that govern flight. It is also very clear that there is a heavy responsibility on a pilot to not only follow the rules, but to put the skills they have been taught to use in managing their flight within the limits of their skill and ability, but also within the limits of their authorization. Here Mr. Sorken was well aware that his rating was VFR only and he had accurate weather reports that advised him the flight was unlikely, as it did not match VFR. He chose to fly into the conditions for which he was not qualified by law and not trained to fly in, nor did he have the experience or skill to fly in. The incident in March 2011 some 10 weeks earlier where he was in a similar situation should have brought this home to him. His ultimate reason and decision for attempting this flight will never be known, although the need or want to get home for the family wedding undoubtedly played a major role.

[31] Once Mr. Sorken started his descent into heavy cloud cover, it is most likely that he became confused and disoriented and not being trained on instruments to help him correct, he quickly lost control of the aircraft. Steepness of the dive and the speed were well beyond Mr. Sorken's skill level or expertise and the crash resulted. The evidence is clear that there were no mechanical or health issues that contributed to this crash. Human factors and human error would be the cause of this accident.

Recommendations

[32] Given the level of regulation already in place and the level of education provided to pilots, there are no recommendations that could be made that would prevent such accidents occurring in the future. Pilots have a responsibility to fly to their legal rating, their skill and their experience level. No regulation or recommendation is needed to enforce this and none would convince those inclined not to, to do so.