QUEENSLAND COURTS

CORONERS COURT OF QUEENSLAND

FINDINGS OF INVESTIGATION

CITATION:	**Non-inquest findings into the suspected death of Bradford Zaiser Maisel**
TITLE OF COURT:	Coroners Court
JURISDICTION:	Cairns
DATE:	9/07/2018
FILE NO(s):	2016/1603
FINDINGS OF:	Nerida Wilson, Northern Coroner
CATCHWORDS:	CORONERS: Robinson R22 helicopter crash into ocean, night flying, loss of visibility, unapproved modification, Pilot error, helicopter.

Contents

Introduction

1. At the time of his death Mr Bradford Maisel was a 50 year old married cane farmer from Mareeba in the State of Queensland.

2. Many of the statements made herein, and the data relied on by me to inform these published non-inquest findings are sourced from various investigation reports. I have relied heavily on the following:

   i) Australian Transport Safety Bureau (ATSB) investigation report dated 18 December 2017;
   ii) Australian Government Civil Aviation Safety Authority (CASA) Investigation Report dated 12 August 2016;
   iii) Queensland Police Service Forensic Crash Unit Report (Cairns) dated 16 October 2016.

Background

3. On 7 April 2016, Bradford Maisel flew his Robinson R22 helicopter registration mark VH-YLY from Mareeba to Bonnie Doon near Mossman, Far North Queensland (the residential premises of his friend, Pilot 2). At approximately 8.00 am, Mr Maisel departed the Bonnie Doon location flying his helicopter with a passenger, Mr G. Pilot 2 departed the Bonnie Doon property in his Robinson R22 helicopter with a passenger, Mr L. Both flights were private recreational flights with friends on a day fishing trip. The pilots flew to various locations in convoy north of Cooktown fishing and crabbing throughout the day. At 6.36 pm, (last light) both pilots refuelled in Cooktown and elected a return journey of 67 - 68 nautical miles to Pilot 2's Bonnie Doon residence via the coastal route in adverse weather.

4. Mr Maisel and Pilot 2 each held a Private Pilots Licence – Helicopter. The pilots were qualified to fly during daylight hours in visual meteorological conditions under the visual flight rules (VFR). Neither pilot was qualified to fly at night or in low visibility conditions that would require instrument flying. The pilots did not hold a night visual flight rules (NVFR) rating, nor instrument rating, and neither helicopter was equipped for flight at night in visual meteorological conditions (VMC). The helicopters were not fitted with an attitude indicator (artificial horizon) or a heading indicator (directional gyroscope), and therefore lacked the equipment required for flight at night under Australian regulations. It is estimated Mr Maisel had between 140 and 250 hours flying time (considered to be a 'low time' pilot). Pilot 2 had in excess of 3394 hours aeronautical experience.

5. Mr Maisel flew his helicopter in doors-off operation. For most of the day Mr Maisel followed Pilot 2 in convoy. Mr Maisel's helicopter had a slower ground speed, most likely due to the fitment of an esky to the left skid, causing extra

drag and possible weight and balance issues. This unapproved modification to the helicopter may have impacted on the performance of the helicopter.

The outbound flight north

6. The pilots refuelled at the Cooktown Aerodrome at around 9.00am. The pilots and passengers were seen walking around the apron with the rotors still spinning indicating the pilots had left the controls with the engines running (a hot refuel).

7. From Cooktown, the helicopters landed at various creeks where they stopped and fished for about 15 minutes before moving to the next stop. From the most northerly point of the trip at Princess Charlotte Bay, the pilots returned south. They stopped at Goose Creek and then Running Creek where they refuelled using a drum of fuel that had been stashed there earlier by one of the passengers. They next stopped at Pipon Island. At some time after 4.00 pm, the pilots departed Pipon Island to return to Mossman. The pilots relied on GPS route and local weather conditions information, as opposed to the aviation area forecast (which would have provided a routine forecast for the designated area), to determine if they had enough fuel and daylight to return to Mossman before dark. The direct track distance from Pipon Island to Mossman is approximately 274 km.

The return flight south

8. The pilots encountered a localised storm with headwinds. The prevailing weather conditions slowed the helicopters and the pilots arranged via radio communication to stop at Cooktown and refuel.

9. Transaction records from Cooktown confirm that the fuel uplift occurred at 6.36 pm. The pilots elected to take off at last light for the 67 nautical mile flight to Pilot 2's residential premises near Mossman.

10. The conditions were described as dark and moonless with intermittent showers and strong gusting winds with little or no terrestrial lighting, steep mountainous terrain on one side and ocean on another. The flight time from Cooktown Aerodrome to Bonnie Doon was estimated by investigators as between 57 and 62 minutes.

11. Mr Maisel and Pilot 2 were not qualified to fly at night. The helicopters were not equipped with an artificial horizon instrument, or any other equipment required for flying at night under the Australian Regulations.

12. Both helicopters departed Cooktown around 6.40 pm, after last light, only minutes apart. Pilot 2 was the first to take off. It is estimated that between 20 and 30 kilograms of fish were stored in the skid mounted esky connected to Mr Maisel's helicopter, thereby exacerbating the aerodynamic drag and performance of the helicopter.

Last light

13. At last light, in ideal conditions, there will be enough light from the sun for large objects to be seen but in no detail. As time passes, light from the sun further diminishes to reach a point where it is insufficient to allow a horizon to be seen at sea level. This point, the end of evening nautical twilight, at Cape Tribulation was calculated to be 7.19 pm, however high terrain to the west would make it effectively earlier. The time of the accident (7.30 pm) was about 10 minutes after the end of evening nautical twilight, and approximately 50 minutes after last light.

14. Mr Maisel's passenger reports that Pilot 2's helicopter vanished into the distance after departing Cooktown and Mr Maisel lost sight of the lead helicopter.

CTAF procedures

15. Cooktown is a non-towered airport (no control tower) and relies on a common traffic advisory frequency (CTAF) for pilots to self-monitor their movements, for ground staff to be aware of aircraft in the circuit and on the ground, and for local authorities to assess and apportion airport use charges.

16. Radio carriage is mandatory, and pilots should always monitor the CTAF and broadcast their intentions, at least in accordance with Civil Aviation Regulations minimum calls policy. Broadcasts on the CTAF are required on arrival (at 10 nautical miles) or when transiting the airspace, when joining the circuit, on final approach, when taxiing for takeoff, before entering a runway and prior to departure. The initial broadcast is to include location, aircraft type, call sign, intentions and estimated time of arrival if applicable. The failure to transmit the required calls ensured that other CTAF users (ground or air) were not alerted to the presence of the helicopters. No radio transmissions by either pilot were heard on the CTAF during the return leg.

The flying conditions from Cooktown to the south

17. The pilots followed the coastal route between Cooktown and Mossman. This route has little to no ground lighting. When passing Bloomfield on the flight south, Mr Maisel elected to turn off all internal lighting including instrument lights and the GPS to reduce the reflection off the windscreen and obtain an external reference. Mr G reported that the helicopter descended so low and so close to the water that he could see the waves. Mr Maisel's helicopter almost impacted the water just north of Cape Tribulation. The passenger reported that Mr Maisel corrected and continued flying. The closest official weather observation site to the accident location was at Low Isles (15 nautical miles to the south). At the approximate time of the accident, the recorded wind was from the south east at 20 knots.

Impact into terrain

18. Mr G then described seeing the water approaching so quickly that he didn't have any chance to shout before he heard a loud bang and the helicopter hit the water. A tourist who was camping at Noah Beach reported hearing a loud bang, then a metallic sound, and then a short time later could smell fuel and called triple zero.

19. Mr G told investigators that he woke up underwater in his seat. He removed his seatbelt and tried to look around but he could not see anything so he swam to the surface. Mr G felt intense pain in his right leg and began yelling for Mr Maisel and telling him to go for the beach. Mr G did not see Mr Maisel on the beach but was yelling in the hope that Mr Maisel could hear him. Mr G swam to the shore where he saw a light. After some time, Mr G came across the Noah Beach camp ground where he was approached by a couple who drove him to the top of the range where they could get phone reception. Mr G called his wife and emergency services. The three returned to the beach where they joined other campers in the search for Mr Maisel. An ambulance arrived and after initial onsite treatment took Mr G to the Mossman hospital. Mr G sustained a bruise to the right hand side of his head, a lump on the back of his head, bruised ribs, an extensively bruised right knee and cuts across his stomach, right forearm and feet, requiring stitches.

Noah Beach looking north towards Cape Tribulation

Forensic Crash Unit (FCU) report 16 October 2016

20. The Queensland Police Service (QPS) completed a comprehensive report summarised as follows:

21. Emergency services commenced the search for Mr Maisel and the helicopter on 8 April 2016. The weather was poor and the sea was murky. This made it impossible to sight the wreckage.

22. A number of items including the pilot's seat, the esky and lid, fishing equipment and bottles of water washed up on the beach between Coconut Beach and Noah Beach.

23. On 9 April 2016, the QPS water police continued the search and rescue operation. Sonar scanning and clearance divers were onsite and in the afternoon there was sonar contact. Navy divers investigated further and found the wreckage of Mr Maisel's helicopter. The helicopter was extensively damaged to the front underside, mostly to the pilot's side. The seat belt on the pilot's side had detached from the bulkhead even though the seat belt clasp was still intact. The author concluded that because the seat was ejected and the seatbelt still clasped together but detached from the bulk head that Mr Maisel would have been thrown from the wreckage on impact.

24. Over the next five days further searches were conducted twice daily on the low tide.

25. The wreckage was located but not recovered.

26. The investigation identified the following list of contributing factors that would have increased the risk of incident on 7 April 2016:
    - Poor planning and time management by Mr Maisel and Pilot 2
    - The weather on the day
    - The esky modification made to Mr Maisel's helicopter. This would have had an impact upon the weight and balance of the R22 which would impact upon the performance and handling of the machine. It would likely have increased in weight through the day from the catch at various spots
    - Non-compliance with the legislation and regulations.

Australian Transport Safety Bureau (ATSB) report dated 18 December 2017

27. The function of the ATSB is to improve safety and public confidence in the aviation, marine and rail modes of transport through independent investigation of transport accidents. The object of safety investigation is to identify and reduce safety related risk. It is not a function of the ATSB to apportion blame or determine liability.

28. The ATSB carried out a thorough and comprehensive investigation into the helicopter accident. The ATSB concluded that Mr Maisel who was qualified to operate only in day-VFR conditions, departed on a night flight and continued towards the destination in deteriorating visibility until inadvertently allowing the helicopter to descend into water.

29. The ATSB noted that the extensive damage to the right side of the helicopter, including the pilot's seat belt fitting found torn from its mount, indicated a significant right-side impact with the water. The main rotor blades and transmission were present and similarly damaged. The tailboom was not identified in the underwater video footage and it likely became detached during the accident sequence. The damage to the helicopter and rotor system was consistent with powered flight into the water.

30. Calibration testing of the pitot-static system and altimeter was due in October 2015 and had not been undertaken at the time of the incident. The ATSB report noted that the accuracy of the airspeed indicator, vertical speed indicator and altimeter at that time would not have been certain.

31. The ATSB identified a number of factors that, collectively, increased the risk of the incident, being:
    - An unapproved modification (esky/container) attached to a skid
    - Exceedance of weight and balance limitations (estimated to be 35kgs over maximum gross weight limitation and longitudinal and lateral centre of gravity estimated to be outside limits on departure from Cooktown or as fuel was consumed)
    - Non-carriage of life jackets
    - Operational decisions based on incomplete operational information
    - Overdue calibration checks of the helicopter pitot-static system and altimeter.
32. The ATSB may use its power to make a formal safety recommendation either during or at the end of an investigation. When safety recommendations are issued, they focus on describing the safety issue of concern, rather than providing instructions or opinions on a preferred method of corrective action. With respect to the circumstances surrounding this accident, no recommendations were made by the ATSB and their report appropriately focused on delivering a relevant safety message to industry.

33. The ATSB released a public safety message within the final report which is published on the ATSB website as follows

> *To avoid the usually fatal consequence of losing visual reference, day-VFR pilots need to plan to arrive at their destination at least 10 minutes before last light and to have a realistic 'plan B' to use when it becomes apparent that the intended flight cannot be completed in daylight. A further consideration for pilot decision-*

making about flying conditions is the degree to which passengers are also exposed to risk.

Key messages from the ATSB Avoidable Accidents series report No. 7 highlights that some night and some terrain are darker than others, and inadvertently flying into instrument meteorological conditions (IMC) is also harder to avoid at night. Pilots need to be mindful of similar messages provided in pilot operating handbooks that refer to risk associated with loss of visibility and night flight in bad weather.

Conclusions

34. There were no reported or known mechanical or other issues affecting the Robinson R22 registration mark VH-YLY prior to the helicopter colliding into the ocean.

35. Separate investigations conducted by the Queensland Police Service Forensic Crash Unit, the Australian Transport Safety Bureau and the Civil Aviation Safety Authority were comprehensive. The circumstances of this event was thoroughly and adequately investigated by each agency.

36. The relevant agencies concluded that a combination of factors contributed to the collision including:

    i. onset of nightfall and resulting loss of visibility in night flight
    ii. the pilots lack of experience and qualifications to fly at night
    iii. the helicopter was not equipped to fly at night
    iv. variable weather conditions
    v. unapproved modifications to the helicopter by the pilot
    vi. overload and consequent imbalance affecting the centre of gravity

37. I agree with those conclusions.

Findings required by s. 45

I find that Bradford Zaiser MAISEL is deceased.

Identity of the deceased: Bradford Zaiser MAISEL

How the person died: Bradford Zaiser Maisel was the pilot in command of a Robinson R22 helicopter registration mark VH-YLY and whilst on a recreational fishing trip with friends died as a result of inadvertently flying the helicopter into the ocean, (a controlled flight into terrain, 'CFIT'), in a right skid low attitude, approximately 6kms south of Cape Tribulation and

	five hundred (500) metres seaward of Noah Beach in the Daintree National Park North Queensland. There is no evidence of any mechanical failure. The cause of the crash is as a result of inadvertent pilot error. The body of Bradford Maisel has not been recovered. I find Bradford Maisel is deceased.
Date of death:	7 April 2016
Place of death:	Noah Beach 6 km south of Cape Tribulation Queensland 4873 Latitude 16° 8.278' S Longitude 145° 27.346' E
Cause of death:	Fatal injuries sustained as a consequence of a helicopter colliding with the ocean.

I thank Ms Melia Benn, Counsel Assisting the Northern Coroner, for her invaluable assistance throughout this investigation.

I close the investigation.

Nerida Wilson
Northern Coroner
3 July 2018