



REASSESSMENT OF THE RESPONSE TO TSB RECOMMENDATION A94-18

Flight into adverse weather - Risk awareness

Background

On 12 August 1994, the Transportation Safety Board of Canada (TSB) made three interim Aviation Safety Recommendations relating to visual flight rules (VFR) helicopter operations in adverse weather. The recommendations were subsequent to an accident near Houston, British Columbia on 29 January 1994, in which a Bell 206 BIII helicopter, with the pilot and four passengers on board, crashed approximately 2.5 miles to the north of its departure point. The helicopter was destroyed and the pilot and passengers sustained fatal injuries.

The Board determined that the pilot, while attempting to climb through a fog layer by using rising terrain as a visual reference, most likely lost the visual cues required for flight in visual meteorological conditions (VMC). The helicopter struck a ridge, probably while the pilot attempted to regain his visual reference with the ground.

The pilot's decision to use the rising terrain as a visual reference under the existing visibility conditions was a contributing factor to this accident.

The Board concluded its investigation and released Aviation Investigation Report A94H0001 on 05 July 1995.

TSB Recommendation A94-18 (August 1994)

A TSB safety study on VFR into adverse weather found that VFR-into-instrument-meteorological-conditions (IMC) accidents accounted for only 6% of the total number of aircraft accidents in Canada; yet, they involved 23% of all fatal accidents and took the lives of 418 persons between 1976 and 1985. Half of the VFR-into-IMC accidents had occurred in mountainous or hilly terrain; approximately 10% of VFR-into-IMC accidents involved helicopters, and one third of these were fatal. Since the release of the safety study and its associated recommendations in December 1990, there have been 10 commercial helicopter accidents in Canada involving VFR flight in adverse weather, resulting in six fatalities. The Board believes that some VFR-rated helicopter pilots, especially those operating in mountainous areas, have adopted the practice of intentionally penetrating localized areas of extremely reduced visibility in order to reach areas of better weather.

Commercial helicopter accidents in adverse weather continue, despite frequent emphasis in TC safety newsletters and presentations on the importance of adhering to established VFR limits. The Board believes that proper training and education are important in the prevention of adverse weather accidents; however, the Board was not aware of any substantial measures in

this vein being taken by TC or the helicopter industry following the recommendations of its 1990 study.

Therefore the Board recommended that

The Department of Transport, in consultation with the aviation industry, implement a special safety campaign to inform the helicopter community of the inherent risks involved in the ad hoc practice of penetrating cloud/fog in VFR operations, particularly in mountainous regions.

TSB Recommendation A94-18

Transport Canada's response to Recommendation A94-18 (October 1994)

Transport Canada Aviation (TCA) agrees with the concerns of the Transportation Safety Board regarding the inherent risks involved in the ad hoc practice of penetrating cloud/fog in VFR operations, particularly in mountainous regions. In this regard, TCA regularly stresses in its safety newsletters and presentations across the country the importance of adhering to established VFR limits and the practice of good airmanship while flying in areas of adverse weather.

TCA will promote the Board's concerns in a feature article in the specialized helicopter safety newsletter, the Aviation Safety Vortex, which is distributed free of charge to all holders of a valid Canadian helicopter pilot licence. In addition to the Vortex feature article, and after the release of the Board's Final Report into the Houston accident, the Regional Aviation Safety Officers (RASOs) across the country will be provided with a special promotional package concerning this accident and the practice of voluntarily penetrating cloud/fog in VFR operations, so that they may distribute it to the helicopter industry during their regional visits. In the meantime, the RASOs have been provided with copies of the Board's Communique and background information on the three recommendations.

TSB assessment of Transport Canada's response to Recommendation A94-18 (January 1995)

In their response, TC outlines several existing and planned initiatives to inform the helicopter community of the risks associated with penetrating fog/cloud. However, the response does not indicate whether the helicopter industry is involved in or supports the campaign.

Therefore, the response to Recommendation A94-18 is assessed as **Satisfactory Intent**.

The deficiency file is assigned an **Active** status.

TSB reassessment of Recommendation A94-18 (November 1996)

An article was published in Aviation Safety Vortex issue 1-95 and the RASOs have been provided with copies of the Board's communique and background information on the three recommendations

Therefore, the response to Recommendation A94-18 is assessed as **Satisfactory in Part**.

TSB reassessment of Recommendation A94-18 (November 1997)

No change to the regulations since the previous reassessment.

No change of status from the previous reassessment.

Therefore, the assessment remains as **Satisfactory in Part**.

As such, **Further Action is Unwarranted** with respect to Recommendation A94-18 and the status is changed to **Inactive**.

TSB review of Recommendation A94-18 deficiency file status (April 2014)

The Board requested that A94-18 be reviewed to determine if the Deficiency File Status was appropriate. After an initial evaluation, it was determined that the safety deficiency addressed by Recommendations A94-18 needed to be reassessed.

A request for further information was sent to Transport Canada and a reassessment will be conducted upon receipt of Transport Canada's response.

Therefore, the assessment remains as **Satisfactory in Part**.

Consequently, the status of Recommendation A94-18 is changed to **Active**.

Transport Canada's response to Recommendation A94-18 (December 2017)

TC agrees with the recommendation.

TC has published various information including articles in the Aviation Safety Letter (ASL) and the Vortex regarding this matter.

The new standards for the crew resource management (CRM) have been published on the CARAC Activity Reporting website on 28 July 2017 and can be found at the following locations: <http://www.wapps.tc.gc.ca/Saf-Sec-Sur/2/NPA-APM/actr.aspx?id=15&aType=1&lang=eng> and <http://www.wapps.tc.gc.ca/Saf-Sec-Sur/2/NPA-APM/actr.aspx?id=15&aType=1&lang=fra> (last link on the page entitled 'Standard - Crew Resource Management').

Industry stakeholders were briefed prior the publication and the new standards will come into effect on 31 January 2019.

The amendments will be incorporated into the actual standards on the CARs website as part of the December 2018 CARs amendment (30 days before the amendments become effective).

In the meantime, there will be a new link added to the CARs Index page for 'Approved Standards Not Yet in Effect' when the next CARs amendment is released. The new link will take you to a page providing the text of the amended/new provisions that are not yet in effect. The CARs Index page is at the following link: <http://www.tc.gc.ca/eng/acts-regulations/regulations-sor96-433.htm>.

TC believes this recommendation has been addressed while at the same time, we recognize the ongoing issues regarding weather and it is our intention to continue to publish information to promote safe decisions in operations.

TC has also taken regulatory action to address this and other risks facing commercial air operators. TC recently published new CRM Standards that will require all commercial helicopter (and aeroplane) operators to develop and administer annual CRM training.

Three of the mandatory elements of the new CRM standard are threat and error management, situational awareness and decision making, as well as a module entitled Relevant Case Study which is intended to relate directly to risks encountered in the operator's area and type of operations.

This solution is considered to be much more proactive than a general safety campaign because it will be operator-specific with regard to area of operation, type of equipment and specific climatic and terrain challenges applicable to the operation. TC approval and monitoring of the training syllabus will ensure that this topic is properly addressed by each operator.

TC considers that these initiatives will continue to address the issue of compliance with weather and visibility minima.

TSB reassessment of Transport Canada's response to Recommendation A94-18 (March 2018)

TC has taken a number of actions to address the safety deficiency identified in Recommendation A94-18, with respect to informing the helicopter community about the risks associated with penetrating cloud/fog in visual flight rules (VFR) operations, particularly in mountainous regions. These include the following:

- The distribution by TC of various safety publications regarding the safety deficiency identified in Recommendation A94-18;
- The development and distribution by TC of a special promotional package, geared towards the helicopter community, to raise awareness about the hazards identified in TSB Aviation Investigation Report A94H0001 and the practice of voluntarily penetrating cloud/fog in VFR operations; and
- TC sent a letter raising awareness about regulatory compliance and risk awareness to its regional inspectors and helicopter associations in order to remind pilots that "pressing-the-weather" is not an acceptable practice in commercial VFR helicopter operations.

In addition, new crew resource management (CRM) standards will come into effect on 31 January 2019, under subparts 722, 723, 724 and 725 of the *Commercial Air Service Standards* (CASS), and apply to aerial work, air taxi, commuter and airline operators.

Under these new standards, air operators are required to provide contemporary CRM training to flight crews, flight attendants, dispatchers/flight followers, ground crew and maintenance personnel, on an initial and annual basis.

These new standards will integrate contemporary CRM by applying threat and error management (TEM) concepts for all commercial air operators. In order to validate CRM skills, the new standards will also require an assessment for non-technical skills, such as cooperation; leadership and managerial skills; situational awareness; and decision-making. The training will provide knowledge and skills, which can assist flight crews in recognizing risks, such as those associated with penetrating cloud/fog in VFR helicopter operations.

The new CRM standards have been published on the Canadian Aviation Regulation Advisory Council (CARAC) Activity Reporting website. Additionally, TC published Advisory Circular 700-042, which provides guidance to the industry for compliance with the new standards, as well as an article in its Aviation Safety Letter, Issue 4/2017, regarding the need for commercial air operators to prepare for the new CRM standards.

Although TC did not implement the special safety campaign called for under Recommendation A94-18, the Board considers that the actions taken by TC have reduced the risk associated with the safety deficiency identified in Recommendation A94-18. This risk will be further reduced once the new CRM standards come into effect.

Therefore, the response to Recommendation A94-18 is assessed as **Fully Satisfactory**.

Next TSB action

The deficiency file is **Closed**.