

ID: 38328385

9 September 2019

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Dear Jim

Aviation Risks at Queenstown

Thank you for your enquiry about the Civil Aviation Authority's (CAA) view of the risks associated with aircraft icing on approach to land at Queenstown Airport and any other aviation risks that may exist in the Queenstown basin. In preparing this response, I have drawn on research conducted by the CAA's Deputy Director (Air Transport and Airworthiness), the Air Transport Unit (ATU), the Intelligence, Safety and Risk Analysis Unit (ISRAU), the Safety Investigation Unit (SIU) and the Principal Meteorological Officer.

Firstly, by way of introduction, it is fair to say that every airport around New Zealand poses risks related to factors such as its particular geography, local weather patterns, wildlife (bird) activity and the mix of aviation operations conducted at and around the location. Queenstown is no exception in this regard having challenging topography, significant localised weather patterns and a mix of different types of aviation activity. From an aviation safety perspective, the crucial issue is not so much about whether the risk factors exist, it is much more about how well they are managed. In this respect, the November 2016 introduction of controlled airspace in the basin and the introduction of Required Navigation Performance (RNP) arrival and departure procedures are both examples of effective risk mitigation actions.

Thus, operations at Queenstown Airport are certainly subject to a number of hazards and associated risks. However, I am confident that these risks are being effectively managed by the various parties involved in those operations. There is a suite of risk controls applied by air operators, air traffic control and the aerodrome operator to ensure risks are managed to an acceptable level. Under the new requirements for Safety Management Systems (SMS), the CAA conducts certification to ensure that these aviation participants have met the requirements for a SMS which is 'present and suitable' and then conducts monitoring and inspection to ensure the SMS is 'operating and effective'. In the case of Australian operators flying to/from Queenstown Airport, the Australian Civil Aviation Safety Authority (CASA) provides regulatory oversight of those operators. The CAA maintains close liaison with CASA for early detection of any safety issues. I am not aware of any concerns raised by CASA with regards to Queenstown Airport operations.

The CAA recently conducted a comprehensive review of risk controls in place to support safe air transport operations at night into Queenstown Airport. Many of these controls also apply to daytime operations. This review concluded that the risk controls are fit for purpose and are being effectively applied in practice. For example, Air New Zealand has a specific Queenstown Airport training and assessment programme in order to qualify flight crew for operations at that airport.

In respect of concerns about aircraft airframe icing on approach to Queenstown, a meteorological analysis and review of occurrence reports does not support that there is an elevated level of concern with respect to Queenstown. The initial meteorological analysis states: *From an initial review, there does not appear to be any obvious trend over the past few years in either pilot reports on icing or in warnings of severe ice in the NZZC FIR.* As part of our routine monitoring of Queenstown Airport operations we are planning to conduct a more detailed analysis in due course, but so far there is nothing to suggest that Queenstown presents a higher risk profile than normal from an aircraft icing perspective.

The four main airlines conducting jet operations at Queenstown are all capable of executing RNP approach procedures. These approach procedures are essentially constant descent paths which limit the aircraft exposure time in any icing layer. The A320 and B737-800 aircraft used have very capable engine and wing anti-icing systems. In cases where icing is significant, they will be operating below maximum landing weight and so will have a considerable performance margin if a missed approach (go-around) is required. We have also examined the procedures employed by turboprop operators and are satisfied that the combination of pilot training and pre-flight planning with respect to weather/icing, in-flight updates including pilot reports (PIREPS) and aircraft systems provide a basis for sound decision-making by the pilot. Also, there have been numerous cases where the airline has cancelled flights rather than exposing crews and passengers to operations in severe weather. Although disruptive to schedules, this reinforces the risk-management approach they are required to take under their mandated SMS.

The safety of air transport operations has shown continual improvement over time. This is due to advances in aircraft design, implementation of new technology (e.g., RNP procedures), air traffic surveillance, enhanced crew training, improved weather forecasting, infrastructure improvements, enhanced information sharing, new safety initiatives (e.g., SMS) and evolving regulatory requirements and oversight. Based on the advice I have received I consider that these advances have combined to ensure that the risks of air transport operations to and from Queenstown are currently being well managed to ensure public safety.

Yours sincerely



Graeme Harris
Chief Executive