



Australian Government

Australian Transport Safety Bureau

Weather diversion from Sydney Airport to emergency alternate involving Qantas B787-9 VH-ZNJ

Sydney Airport, New South Wales on 18 February 2023

ATSB Transport Safety Report

Aviation Occurrence Investigation

AO-2023-009

Discontinuation notice – 29 May 2023

Released in accordance with section 25 of the *Transport Safety Investigation Act 2003*

Publishing information

Published by: Australian Transport Safety Bureau
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Addendum

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Discontinuation notice

Section 21 (2) of the *Transport Safety Investigation Act 2003* (TSI Act) empowers the ATSB to discontinue an investigation into a transport safety matter at any time. Section 21 (3) of the TSI Act requires the ATSB to publish a statement setting out the reasons for discontinuing an investigation. The statement is published as a report in accordance with section 25 of the TSI Act, capturing information from the investigation up to the time of discontinuance.

Overview of the investigation

On 18 February 2023, a Boeing Company 787-9, registered VH-ZNJ, was being operated on a scheduled passenger flight between Santiago, Chile, and Sydney, Australia. At 1639 Sydney local time, prior to the top of descent, the flight crew requested and received, via the aircraft communication and addressing system (ACARS), the weather forecast (TAF 3) for Sydney, Melbourne, and Canberra airports in preparation for their planned arrival time of 1820. The flight crew also requested and received the forecast for Christchurch, New Zealand.

The Sydney TAF3 for their arrival stated clear skies and wind from 040° True with a speed of 22 knots. The forecast also stated that from 1900, for periods of up to 60 minutes, there would be a 30% probability of wind being variable at 20 knots gusting to 40 knots, along with thunderstorms and rain in which visibility would reduce to 2,000 m.

Due to the forecast thunderstorm having only a 30% probability and not commencing until 40 minutes after their planned arrival time, there was no company or CASA procedural requirement for the flight crew to discontinue the approach to Sydney Airport or to plan for an alternate destination. However, during the descent, the flight crew requested and received the forecast for Williamtown Airport, New South Wales, which stated clear skies and wind from 060° True at 14 knots.

An aerodrome warning was subsequently issued for Sydney Airport at 1735 by the Bureau of Meteorology for a squall line ahead of the storm commencing at 1845, again after the planned arrival time of VH-ZNJ. At 1745 the flight crew received the Automatic Terminal Information Service data (ATIS) which provided current information and conditions at Sydney Airport. The ATIS stated that at 1732 wind was from 020° True at 22 knots, visibility was greater than 10 km, and there were thunderstorms to the north. The ATIS also contained a significant weather caution for a possibility of turbulence on runway 34 right final.

At 1818, 2 minutes before VH-ZNJ arrived overhead Sydney Airport, the TAF 3 forecast was amended stating that from 1830, the forecast wind would be from 230° True with an average velocity of 25 knots gusting to 45 knots and that, from 1800 (retrospectively applied), there would be periods of up to 60 minutes of wind being variable at 30 knots gusting to 50 knots, along with thunderstorms and hail, visibility reducing to 1,000 m with scattered cumulonimbus at 600 feet above ground level.

At 1820, the aircraft arrived overhead Sydney Airport and conducted a left turn to position the aircraft on downwind for runway 34 left. Shortly after, moderate turbulence and high wind conditions were encountered leading to an unstable approach. In response, the crew conducted a missed approach and advised air traffic control of minimum fuel conditions. The captain later reported to the ATSB that the aircraft was down to approximately 60 minutes of fuel. Due to this quantity being insufficient to hold while the thunderstorm passed, the flight crew diverted the aircraft to Williamtown, where an uneventful landing was conducted.

Following notification of the occurrence, the ATSB initiated an investigation.

As part of its investigation, the ATSB:

- interviewed the captain and the first officer
- analysed:
 - recorded data from the aircraft's flight data recorder
 - the ACARS flight log
 - the weather reports and forecasts from the Bureau of Meteorology
- reviewed company planning and diversion procedures.

ATSB comment

The available evidence indicated that, prior to the top of descent, the flight crew of VH-ZNJ collated all necessary and available information required for a decision to be made for their arrival to Sydney Airport.

The Sydney TAF 3 was amended 2 minutes prior to VH-ZNJ being overhead due to the thunderstorm arriving earlier than forecast. The flight crew, already in visual range with the airport, had no requirement to collect or review the amended forecast. Additionally, until the 1818 amended TAF3 was issued with a retrospective forecast of deteriorating conditions, there was no requirement for the flight crew to make provision for holding or diversion to an alternate airport.

The retrospective application of periods of temporary or intermittent deteriorating conditions within a current TAF 3 validity is due to the format being unable to provide detail to the nearest minute. Amendments to a TAF are issued as soon as the need is recognised and when a TAF 3 is amended at a time between whole hours, the commencement of its validity is ordinarily the next hour. However, as was the case with the 1818 forecast detailed above, the TAF 3 may be amended from the preceding hour if the amendment criteria are expected to be met before the next hour.

Reasons for the discontinuation

Based on a review of the available evidence, the ATSB considered it was unlikely that further investigation would identify any systemic safety issues or important safety lessons. Consequently, the ATSB has discontinued this investigation.

The evidence collected during this investigation remains available to be used in future investigations or safety studies. The ATSB will also monitor for any similar occurrences that may indicate a need to undertake a further safety investigation.