



Australian Government
Australian Transport Safety Bureau

Office of Transport
Safety Investigations

Derailment involving freight train 5WB7

Casino, New South Wales, on 17 March 2022



ATSB Transport Safety Report
Rail Occurrence Investigation
RO-2022-004
Discontinuation notice – 22 December 2023

Cover photo: Wreckage of forward portion of derailed train 5WB7 at Casino.
Source: Office of Transport Safety Investigations (OTSI).

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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

At about 2230 on 17 March 2022, an axle in the rear part of train 5WB7 broke as the train entered the yard at Casino, derailing the wagon. As the train passed through the yard it travelled over a set of points for the closed Murwillumbah Branch (set for the mainline). At this point, the derailment worsened with the rear four wagons derailing and becoming detached from the rest of the train. The train then passed through a second set of points (also set for the mainline) and came to a stop. A further four wagons at the rear of the train were derailed. A significant amount of track and signal infrastructure was damaged within Casino yard, however there were no injuries.

During the investigation, the ATSB found:

- The derailment was due to a broken axle on the 55th wagon (RKPF30311).
- The metallurgical analysis of axle concluded that the failure was due to a fatigue crack on the axle barrel. The fracture face exhibited corrosion indicating the crack had been present for an extended period. The initial cause of the fatigue crack and exact duration could not be determined with the evidence available.
- The wagon was operated and maintained by Pacific National until it was transferred to Qube on 1 January 2022.
- The journey on 17 March 2022 was the first time that the wagon (RKPF30311) had been used by Qube since the transfer. The wagon underwent a full train inspection (FX) prior to departing Port Kembla.
- The train, wagon and axle had been inspected and maintained in accordance with both operators' procedures.
- The in-service inspections of wheels and axles were by visual inspection as part of the full train inspection and roll-by inspection. However, the inspections were limited to the detection of large or obvious defects.
- When wheels and axles were removed from the wagon they were subjected to visual and non-destructive testing in accordance with the operators' procedures and relevant standards. Where damage was detected, the defect could be treated if it was below the maximum permissible defect size. Non-destructive testing was conducted to ensure the defect was removed prior to the axles being returned to service.

During the investigation, the ATSB also reviewed the following:

- the axle inspection and defect data for class E axles held by the operator
- the axle inspection process and engineering standards
- the visual and non-destructive testing process for class E axles and witnessed the inspection process
- asset handover process from Pacific National to Qube.

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.

In response to the incident, Qube has advised the following safety actions have been taken:

- Visual inspections and ultrasonic testing of the axles on the wagons received from Pacific National.
- Updated rolling stock maintenance manual using data from the on-wagon axle testing to provide clear standard for future axle maintenance.
- Created an axle register to ensure that all Qube axles have unique identifying numbers.
- Made representations to the Rail Industry Safety and Standards Board (RISSB), to consider strengthening the requirements of AS 7515 Axles to mandate the marking of axles with dates and sources of manufacture to align with traceability requirements of AS 7514 Wheels.

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.