

Safety Advisory SA01/24

Consideration of extreme weather events in safety management systems

Safety message

Effective rail safety management systems require consideration of external factors like extreme weather events. Extreme weather events require operators and infrastructure managers to maintain extra vigilance to identify and manage potential hazards that may lead to derailments or damage to rail infrastructure and rolling stock. Depending on the extreme weather event, the consequences of a rail incident may also extend to adjacent land or infrastructure assets.

The incident

On 6 December 2023, freight train WG185 derailed on approach to Murrumbo crossing loop on the Ulan line in the Hunter region of NSW. Approximately 20 empty wagons derailed during the incident, damaging two kilometres of track infrastructure. The derailment also sparked a wildfire which impacted neighbouring private land and the Wollemi National Park.

The incident resulted in a temporary closure of a major coal distribution route and required a coordinated response from the National Parks and Wildlife Service, the Rural Fire Service, the rail infrastructure manager and rolling stock operator.

OTSI deployed to the incident to establish the cause of the derailment and identify if there were any safety critical issues which could impact future rail operations.

OTSI observations

During the deployment, OTSI made the following observations:

- A track misalignment was observed at the Bylong Valley Way overpass.
- The temperatures in the area at the time of the incident reached a recorded maximum of 40.1°C.
- High temperature speed restrictions were enacted in areas designated as special locations.
- Bylong Valley Way overpass was not a designated special location.
- As required under the rail infrastructure manager's procedure, the train crew contacted network control to report concerns about the condition of the track at Bylong Valley Way, unaware that the train had already derailed.
- On reaching the points at the Murrumbo crossing loop, the derailment worsened, resulting in the decoupling of wagons which caused the train to automatically come to a stop.

- No track defects were identified during prior inspections conducted by the rail infrastructure manager, and extreme weather events were monitored and managed in accordance with their protocols and network rules.
- The fire caused by the derailment burned 37.8 hectares of land and required five days of water bombing operations to be extinguished.

Key points for rolling stock operators and rail infrastructure managers

The Murrumbo derailment serves as a reminder for rail transport operators to:

- Ensure risk management for extreme weather events and track stability is current and considers Bureau of Meteorology advice for predicted events throughout the year.
- Remind rail safety workers to remain vigilant and continually assess the condition of the track and make timely reports of any defects to network control.
- Ensure rail safety workers' induction and refresher training includes sufficient operational information for identifying and traversing track defects (such as buckles).
- Ensure rail transport operators' emergency management plans are current, routinely practised and provide information relating to seasonal hazards and the roles and responsibilities of each rail safety worker during an emergency response, including scenarios where external agencies may assume jurisdictional control over the incident.

For further information contact: engagement@otsi.nsw.gov.au

Figure 1: Murrumbo Valley derailment site and fire ground



Figure 2: View of the track buckle (367.538 km) at Bylong Valley Way overpass



Figure 3: View of the wreckage at Murrumbo crossing loop

