

Shared Learning

Key learning following a serious incident

Langworth freight train derailment

Issued to: All Network Rail line managers, safety professionals and RISQS registered contractors

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Location: Langworth, near Lincoln

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Overview

At 14:30 on 30 June 2015 a freight train derailed between Lincoln and Langworth.

The train consisted of a Class 60 locomotive and 22 empty, diesel fuel, bogie tank wagons (type TEA). The train was travelling at approximately 48mph approaching 101B points when the driver saw a kink in the left-hand rail. A lateral misalignment was also recorded by CCTV on an East Midlands Trains service prior to the derailment.

The freight train separated at the coupling between the 13th and 14th wagons and the two parts of the train came to rest approximately 250 metres apart. Six wagons derailed and some rolled over.

Underlying causes

The following conditions combined to result in a failure of track stability:

1. Hot weather on 30 June 2015.
2. An inadequate ballast cess shoulder through the crossing.
3. The lateral track misalignment was detected in the previous track geometry recording but was not so significant to require rectification.



The separation of the train had caused the continuous brake pipe to part, applying the brakes to the train.

The wagons derailed to the right as the leading bogie of Wagon 11 passed over a track buckle. It is likely the track buckle developed during the passage of the train.

There were no injuries or fire but the infrastructure was damaged. Wagons 14 to 19 had to be recovered by crane.

The following factors also had the potential to contribute to the failure of track stability:

1. A history of vertical and lateral geometry problems at the site requiring repeated manual interventions to lift and pack, consolidate ballast and slew the track.
2. Differential ballast settlement.
3. Suspected inadequate stressing of the replacement 102A crossing (indicated by absent stressing records).
4. 102A points not being suitable for use in Continuous Welded Rail due to the construction of the heel joints.
5. If the history of track inadequacies and manual maintenance at the location had been reviewed in combination with the missing stressing records for the replaced crossing, this location may have been identified as 'high risk' for buckling and precautions put in place to mitigate the risk.

Key message

Low level individual risks can combine to create a significant resultant risk.

Those responsible for managing risks (including Track Maintenance Engineers) should review the locations and processes they manage to consider whether they have any similar sites where low level factors could combine to create a higher resultant risk.

TMEs should assure themselves that all points are correctly designed and installed, with complete stressing records.

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