

On track plant derailment at Worcester

Issued to: **Network Rail line managers, safety professionals and accredited contractors**

Ref: NRL20-06

Date of issue: 08/06/2020

Location: Wales and Western

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Overview

On the 25th November 2019 a Komatsu PC138 Road Rail Vehicle (RRV) derailed whilst lifting a 20ft track panel and travelling over a set of points at Worcester Shrub Hill station sidings. This caused damage to baseplates and securing bolts. The derailment category was classed as moderate to severe.

At the point of derailment, the RRV was travelling in an unsafe mode due to a fault in the axle control system. This fault was known to exist by the Machine Operator (MO) and was being exploited to achieve a perceived increase in stability. This action was in contravention to the machine operating instructions and the MOs competence.

The fault permitted the machine to travel without the rail axles being fully deployed and had also locked the axles thereby preventing machine compensation for poor rail geometry. The MO carried out the lift operation with the Rated Capacity Indicator (RCI) in a non-lifting mode so it had no visible or audible warning of the limit of the machine's safe lifting capacity.

Operating the RRV in an unsafe mode with the rail axles not fully deployed, rail axles locked and the RCI being in a non-lifting mode, were the significant immediate causes of the derailment.

The Crane Controller (CC) and the On-Track Plant Operations Scheme (POS) Representative failed to notice as part of their checks that the machine was being used in an unsafe mode and that the RCI indicator light was showing the machine was in a non-lifting mode.

The MO, CC and POS Rep failed to follow the correct procedures and actions following the event so evidence of the cause was not preserved. This hindered the investigation, so the information had to be gained from the data logger download and by carrying out a re-enactment.

Underlying causes

- The machine had a known fault on the axle control system which was being exploited to adopt an unauthorised working mode for the machine.
- The MO contravened the machine's operating instructions and the MO's competence in the use of the machine.
- Insufficient briefing of the lift plan / Plant Operations Scheme (POS) pack by the POS Representative to the MO and CC.
- The Crane Controller and POS Rep failed to identify the machine was being used in a degraded manner and were therefore not in full control of the RRV and its movements.

Key messages

- All machine faults and defects must be reported and recorded in accordance with company procedures.
- Safety-related plant defects must be reported using NIR-Online and in accordance with RIS-8250-RST.
- RRV's must be operated in accordance with the machine operating instructions and the competence requirements.
- The correct lifting mode must be selected on the RCI before the machine carries out any lifting activity.
- Machine Operative, Machine Controller / Crane Controller and POS Representative must ensure the plant is deployed in the correct mode for the activity to be undertaken.
- POS Representative must brief the Machine Operative, Machine Controller / Crane Controller on lift plan and POS pack before work commences.
- If an incident happens, it is essential that evidence is preserved on site:
 - Ensure suitable photos are taken of the environment, plant and equipment, damage to the plant and equipment, and damage to the infrastructure.
 - Consider re-enactment of the incident.
 - Make sure you have authority to resume work following an incident, after checking the plant and infrastructure for damage.

