



SIGNIFICANT INCIDENT REPORT NO: 129

Derailment and fall of overhead Crane



INCIDENT

A derailment and fall of a Bridge Type Electric Overhead Travelling Crane occurred recently at a workshop on a mine in the Northern Goldfields. Fortunately no injuries were sustained to personnel, but major disruptions to maintenance operations occurred and the repair and replacement costs to were estimated to be >\$250K. Although uncommon this type of occurrence presents an extremely serious hazard and risk of injury to personnel operating and working in proximity to cranes of this type.

A boilermaker was undertaking refurbishment work to an Underground Truck tray (tub) and needed to turn the tub from its inverted position to an upright position and rest it on its base. The movement required several manoeuvres in the lifting process to turn it over.

During the final manoeuvre the lifting chains were adjusted and the tub was raised to lie at an angle to assist in the turning process. The tub was lowered and the crane was moved to re-centre the load. The tub tipped over and the crane suddenly began to move uncontrollably hitting the long travel end stops upon which it derailed. One end of the crane fell into the tub. The boilermaker was in very close proximity to the tub when the crane fell.

CAUSES

The tub was not centralised under the crane. In the final tipping manoeuvre when the tub was in contact with the floor, the tipping of the tub caused a sudden change in the load distribution and exerted a side-pulling effect, which caused an uncontrolled and accelerated movement of the crane when the crane was engaged to travel. This led to the flanged wheels of the long travel carriage closest to the tub riding up on their track and derailing just before hitting the long travel end stop thus causing the crane to fall.

The suitability of the crane for the task was also questionable.

PREVENTATIVE ACTION

The company concerned is assessing its needs for a replacement crane eg investigating whether the type/capacity crane is suitable for the task being performed at the time of the occurrence. The company is also ensuring the measures mentioned below are carried out.

From a regulatory perspective nearly all occurrences involving cranes of all types result from non conformance with the following Australian Standards (AS) and Regulations, which should be observed:

- All cranes used at the mine conform in all respects with AS1418.1 pursuant to Regulation 6.33 of the Mines Safety & Inspection Regulations 1995 (MSIR).
- The use of cranes at a mine must be in accordance with AS2550.1, which covers the general requirements for the safe use of cranes. This standard has separate parts covering various types of hoists and cranes. AS2550.3 covers cranes, hoists and winches including bridge, gantry, portal and jib cranes.
- Employees must be provided with adequate instruction, training, assessment and supervision pursuant to Regulation (Reg) 4.13 of the MSIR, which covers induction and training of employees.
- Cranes must be maintained and operated in a safe manner pursuant to Reg 6.2 of the MSIR. The overriding requirement is to have a system that identifies hazards and risks associated with plant and reduces/eliminates employees' exposure to those identified hazards/risks. This is also covered by Regs 6.17 and 6.18 of the MSIR.

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