

Lessons Learnt

Category	Safety & Health <input checked="" type="checkbox"/> Environment <input type="checkbox"/> Quality <input type="checkbox"/> Sustainability <input type="checkbox"/>
Business Unit	Tunneling & Major Projects
Project	WestConnex M4E
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25t Terex Articulated Mobile Crane Rollover



Photo: 25t Terex articulated mobile crane rolled over onto the roof and edge of the shaft. Tyre mud marks on the asphalt indicate the crane location prior to incident.



Photo: 25t Terex articulated mobile crane on the edge of 10m deep shaft



Photo: From the base of the 10m deep shaft, looking up to the 25t Terex articulated mobile crane

Background / What happened? This incident occurred on Tuesday the 15th May 2018.

The operator of a 25t Terex articulated mobile crane hoisted and then began to lower a 5t mini-excavator down into a 10 meter deep ventilation shaft. During the initial stages of the lift the crane exceeded its capacity which caused both visual and audible internal and external alarms to be activated. The operator overrode the crane Load Moment Indicator (LMI) on several occasions during the lift to stop the alarms from being activated. As the 5t mini excavator was being lowered into the vent shaft, the 25t Terex articulated crane rolled forwards onto its roof and then coming to rest on the edge of the vent shaft, allowing the 5t mini excavator to drop to the base of the shaft resulting in significant damage to both excavator and crane.

There were 4 people directly involved. They included;

- The crane operator who overrode the crane computer many times to allow the lift to proceed. When the crane rolled and came to a stop on the edge of the shaft, the operator had to be retrieved from the cabin which was suspended over the shaft edge.
- The Dogman who had been standing 1 meter away from the open edge of the vent shaft. At the time of the incident he was watching the load and did not see the crane rolling forwards towards him, landing near the Dogman.
- Two people (a Supervisor and labourer) were standing at the base of the vent shaft to receive the 5t mini excavator, neither held a Dogman's ticket.

Only minor First Aid injuries were sustained as a result of this incident.

What are the Significant Learnings? The following table lists Significant Learnings for CPB Contractors and should be communicated throughout the business.

Learnings	Description
1	The crane operator overrode the crane computer (Load Moment Indicator) many times to proceed with the lift. This should never happen.
2	There are many components (e.g. ground slope, tyre pressure, rigging of the load, competency of the worker, etc.) of a lift to consider when lifting items of equipment when using a pick-&-carry crane. The Load Moment Indicator (i.e. crane computer) offers the operator real-time feedback so that the crane can be operated safely and within its limits.
3	The Load Moment Indicator (DLMI) data from this crane was downloaded post incident and revealed that the practice of crane override was a common behavior with 10x separate override lifts registered on the LMI data for 7 days prior to the incident. Nb; crane operators may, from time, need to override the crane LMI's for crane setup & travel
4	Activities associated with project need to be documented using planning (e.g. Construction Area Plans, Work Packs, etc.) & risk management (e.g. Safe Work Method Statement, pre-lift start cards, etc.) tools. The Dogman was standing on the edge of the shaft without edge protection. Had the lift been appropriately planned, the Dogman would not have been in this position & at risk of falling.
5	Only personnel who are accredited and who are then deemed competent after meeting the requirements of the Manage Worker Competence procedure and who are then authorised by project can undertake cranes and rigging duties (i.e. operate or dogging & rigging tasks) on CPB Contractor projects.
6	The pick-&-carry crane lifted the 5t excavator by attaching the rigging equipment to the transportation hold down points and not the OEM approved lifting points. This meant the weight of the suspended load was top heavy.

Who needs to know? This lesson is relevant to Cranes and Rigging crews and CPB Contractors Project Teams.

Key Phrases; Cranes and Rigging, Safe Zones, Lifting Capacity, Competent and Authorized, Safety Essentials, One HSE Culture.

How can I find out more? – Contact an Expert

For more information, please contact:

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