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MINING AND TUNNELLING OPERATIONS

Raising or lowering of workers using a crane

What is the issue?

WorkSafe has recently been notified of two serious incidents involving cranes lowering and raising workers in tunnelling and shaft operations. There was no harm caused on either occasion, though the potential for serious injury or fatalities to occur was high.

Incident one

Two workers were being lifted to the surface in a man cage from a shaft that was more than 40 m deep, using a 10 tonne Tadano City Crane. With approximately 12 m to go, the two crew man cage felt two jolts in quick succession followed by a sudden drop of 0.5 m to 1 m. The workers contacted the surface crew via radio and asked for the emergency davit arm rope to be lowered. This was then attached to the man cage and the crew were retrieved safely. The jolts were caused by the rope being wound in reverse and not spooling via the designed spooling mechanism. The reason that the rope was being wound in reverse was because it was too short for below ground use and fully winding off the drum. It was fortunate the rope did not dislodge from the drum and unspool into the shaft.

Incident two

A 30 tonne telescopic boom crawler crane was being used to lift workers, materials, and equipment in and out of a 15 m deep x 3 m diameter shaft. Two workers had been lowered to the shaft bottom in a man cage. To allow them to continue working, the man cage was hoisted approximately four metres up from the shaft bottom and moved to the side of the wall.



FIGURE 1: Incident Two: View of man cage looking down shaft

Three other workers were on ground level working near the shaft. They lowered additional equipment to the workers below using rope.

Once the man cage was clear of the shaft bottom, the crane operator applied the winch brake, turned the motor off, and exited the crane cab. The operator used the standby time to tidy around the crane and help workers at the shaft top. Approximately 1.5 hours after the crane had been turned off, the workers at the top of the shaft heard and saw the crane hoist wire running down and the man cage hit the bottom of the shaft, tipping over on impact. The hook block also hit the shaft bottom. There were no injuries and the two crew members in the shaft were rescued.

Comment

Operators should avoid using cranes with a freefall device installed when used to raise and lower workers. Raising or lowering workers using a crane is a critical risk that requires effective controls and effectiveness monitoring. Critical risk controls must be understood by all workers and applied without exception to ensure everybody's safety.

Further information

For information on the following visit our website:
worksafe.govt.nz

- Approved Codes of Practice for cranes
- Crane operators - Duties Matrix
- Crane Safety for construction site managers and supervisors
- A general guide to the health and safety in employment (pressure equipment, cranes and passenger ropeways regulations 1999)

[BS 6164:2011 Code of Practice for health and safety in tunnelling in the construction industry](#)

Note: WorkSafe is developing a more comprehensive technical bulletin that will detail good practice when lowering workers below ground level.