



Mines Safety Significant Incident Report No. 154

Heavy wire lifting slings fell from crane hook – employees injured

Incident

A crawler-type crane rated at 450 tonnes safe working load (SWL) was being used to position a 1 tonne head chute cover on a conveyor located 45 m above ground level. The crane operator did not have a clear view of the hook or load, and was being directed by a rigger at the conveyor head end. Two fitters and three trade assistants were working in the vicinity of the lift.

The crane was configured with two heavy duty 5 m x 63 mm wire rope slings (each weighing 278 kg) suspended from the crane hook, and the load was being slung with two-leg chains shackled to one of the wire rope slings.

After a second adjusting lift successfully positioned the load, the rigger directed the crane driver to slowly lower the hook to allow removal of the lifting chains. An instruction from the rigger to stop lowering was not heard by the crane operator. As the crane hook descended, ferrules swaged on the “dead ends” of the rope slings fouled against structural steelwork, causing the eyes of the two slings to push upwards in the hook and against the hook safety catch.

With slack rope accumulating, the hook block (weighing some 3 tonnes) started to “fall over”, causing both slings to burst through the safety catch and fall among the work party below. Five employees suffered a range of fractures, lacerations and contusions.

Immediate causes and contributory factors

The accident would not have occurred if the crane had been properly positioned to allowed free movement of the rope, hook and slings well clear of any obstructions.

The type and configuration of the crane were not ideal for the lift being performed, as described below.

- The crawler crane involved had a torque converter system on the main winch and was not configured for fine work that used the whip line (auxiliary winch) and headache ball.
- Use of the two large wire slings increased the risk of fouling on the structure, whereas additional reach could have been achieved with the use of a single-leg chain sling.
- The lifting crew size was inadequate — a single rigger was performing both the rigging work and directing the crane operator.
- The call from the rigger to stop lowering the hook was not heard by the crane operator (nor the trainee crane operator also in the crane cabin) and indicates poor communications.
- The rigger directing the crane operator did not confirm his communication had been received by the crane driver (e.g. by watching the movement of the hook).

Comments and preventative actions

An increasing incidence of accidents involving the use of cranes on mine sites raises serious concern and supports an urgent need for responsible persons at mine sites to review their current work practices.

Most accidents arise from human factors such as poor judgment and inattention, particularly with some small “lifts” that have been incorrectly categorised as “routine” and not requiring a specifically designed lift procedure or risk assessment.

Australian Standard AS 2550 Set: 2008 *Cranes, hoists and winches – Safe use* provides users with essential guidelines for the design, construction and testing of cranes, hoists and winches.

A handwritten signature in black ink, appearing to read 'S. Ridge'.

Simon Ridge

DIRECTOR, MINES SAFETY BRANCH

7 July 2009