



INDUSTRY PLANT CONSULTATIVE COMMITTEE

SAFETY ALERT

RISKS ASSOCIATED WITH FIRES ON TOWER CRANES

The purpose of this alert is to advise officers and workers of Persons Conducting a Business or Undertaking (PCBUs) of the potential risks from fires on tower cranes, following the recent catastrophic incident in Sydney.

Whilst the investigation has only just commenced a number of potential contributing factors have been identified, and given the serious consequences, this safety alert is being released to provide advice on inspections and possible modifications to control the risks.

Although the incident involved a diesel/hydraulic tower crane it is possible for a fire on electric tower cranes, so the following information should also be considered by those with electric tower cranes.

BACKGROUND

During a fire on the machine deck of a diesel/hydraulic powered luffing tower crane the luff rope failed, allowing the jib to collapse onto the worksite below. Fortunately there were no injuries as the worksite had been evacuated and the jib fell into the evacuated worksite, rather than into a populated area.

The incident appears to have resulted from the fire heating the luff rope and weakening it to the point where it could no longer support the jib and consequently failed. The fire could have been fuelled by the diesel fuel or the hydraulic fluid used to power the crane motions, however at this stage the ignition source has not been identified.

CONTRIBUTING FACTORS

There are a number of potential contributing factors on the machine deck to the fire starting and then continuing for sufficient time to damage the rope.

- Quantities of combustible liquid, diesel and hydraulic fluid, in tanks and being pumped in high pressure lines and hoses.
- A diesel engine which provides a number of potential ignition sources.
- An electrical system which provides a number of potential ignition sources.
- A diesel engine and hydraulic pump and motors whose failure could result in a loss of significant quantities of combustible liquid.

ACTION REQUIRED

PCBUs that use plant must ensure risks to the health and safety of workers and others due to the plant is minimised as far as reasonably practicable.

As well as the general obligations to provide and maintain plant it is expected that PCBUs with tower cranes undertake the following applicable actions, if they have not already done so since the incident:

- Involve the crane operator and maintenance crew in checking the crane

- Check that, as far as reasonably practicable, fuel lines and hydraulic hoses are located away from ignition sources or guarded to prevent leaking fluid from contacting potential ignition sources
- Check that hoses are secured to prevent rubbing that could damage the hoses, including when out of service and from idling through to full power
- Do not store unnecessary quantities of combustibles on the machine deck, and ensure any that are necessary are stored as per the safety data sheet information
- Enhance inspection and maintenance programs to prevent or minimise fluid leaks, including preventative hose replacement, and to rapidly detect leaks that do occur
- When replacing hoses ensure that they meet the crane manufacturer's specifications
- Ensure fuel and hydraulic systems are operating as designed and any malfunctions, including leaks, are repaired prior to returning the crane to service
- Where there is a leak or spill of combustible liquid ensure it is cleaned up urgently and contaminated absorbent materials used in the clean-up are removed from the crane
- Ensure that fire detection and extinguishing equipment is maintained
- Ensure that the crane operators and maintenance personnel are aware of the location of the fire extinguishing equipment and how to use it for first attack response
- Review, and if necessary update, the maintenance procedures and schedules, including daily pre-operation inspections, in light of the above
- Review, and if necessary update, the crane evacuation procedures
- Review, and if necessary update, the fire extinguishing equipment and its location. There should be at least an extinguisher in, or just outside the door of the operator's cabin and another one along the egress path

This incident also acts as a reminder to principal contractors of the importance of a site evacuation plan and communication systems to effect the evacuation. Principal contractors are advised to review, and if necessary update, their site evacuation plans and communication systems in light of this example of a structural collapse. They are reminded that the WHS Regulation (Clause 43) requires the emergency procedures to be tested.

FURTHER INFORMATION

- Australian Standard AS2550 Part 1 *Safe use of cranes – general*
- Australian Standard AS2550 Part 4 *Safe use of cranes – mobile cranes*,
Australian Standards available at www.saiglobal.com
- *How to manage work health and safety risks: Code of practice* (Catalogue no. WC03565)
Visit www.workcover.nsw.gov.au or phone **13 10 50**
- *Managing the risks of plant in the workplace Code of Practice (draft only)*
- *Safe design, manufacture, import and supply of plant Code of Practice (draft only)*
- *Cranes Code of Practice (draft only)*
Draft Codes of Practice available at www.safeworkaustralia.gov.au
- Visit Master Builders Association of NSW at www.mbansw.asn.au
- Visit Construction Forestry Mining Energy Union NSW at www.cfmeunsw.asn.au

Issued by the INDUSTRY PLANT CONSULTATIVE COMMITTEE, December 2012.

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