ARTC

SAFETY & ENVIRONMENT LESSONS LEARNT

ARTC No. L0011

TITLE/SUBJECT:

Struck by Mobile Plant (FSR 05) and Crushed by a Crane or Lifted Load (FSR 08)

Type: Dangerous occurrence

LOCATION

Multiple locations

EVENT DESCRIPTION

A series of plant rollover events have occurred over the past two months involving mobile plant and load-shifting activities as detailed below:

On 2 February 2023, a hi-rail tipper driver commenced raising the tub body to deliver capping for a hi-rail access pad and driver walkway. The driver noticed the tipper tilting to the right, ceased lifting the tub and braced whilst the truck rolled over and came to rest on the driver's side of the vehicle. There were no injuries.

On 8 February 2023, a hi-rail excavator was tracking with a pack of eight concrete sleepers (2.6T) in a sleeper handling cradle. The operator slewed the excavator in a clockwise direction (offside to the operator). As the machine slewed to beyond perpendicular to the track, the operator felt the excavator tipping in the direction of the slew. The operator continued to slew and lowered the load in an attempt to offset the tipping of the machine, but before they could get the load to the ground, the excavator rolled onto its side. The operator was wearing a seatbelt and the excavator was fitted with a Roll Over Protection Structure (ROPS). There were no injuries.

On 8 February 2023, a crane being used for third party works was lifting a concrete power transmission pole when the corner outrigger sunk into soft ground causing the crane to topple with the boom coming to rest inside the rail corridor. The pole fell onto the Protection Officer's car. As a result, the overhead wire conductors were taken down, causing two erected concrete poles to snap and the overhead conductors to drop over the live track. It was found after the incident that the crane and lifting operation had the potential to encroach on the danger zone due to an unplanned change in crane location. There were no injuries.

On 14 March 2023, a medium rigid tipper truck delivering woodchip mulch was unloading within the designated laydown area next to an existing stockpile of woodchip mulch. As the truck began to tip the load, some mulch

remained stuck within the enclosed back of the truck raising the centre of gravity of the truck and causing it to overbalance and roll onto the passenger side. The ground was found to be firm, however the rear axle was on uneven ground at the time. The driver was unharmed.

Cabramatta Loop Project – truck delivering woodchip mulch rolled onto passenger side.

KNOWN CONTRIBUTING FACTORS

Upon review, the mechanisms of failure are quite different, however there are some common themes that can be addressed through improving situational awareness and task-based risk assessment.

KEY LESSONS TO BE SHARED

These incidents serve as a reminder of ARTC Fatal and Severe Risks #5 Struck by Mobile Plant (FSR 05) and #8 Crushed by a Crane or Lifted Load (FSR 08).

Key aspects to consider while planning load shifting activities include:

- Does the plant selected meet the intended purpose?
- Is the plant suitably sized for the intended load with a suitable factor of safety for unknown factors and errors in estimated loads?
- Is the plant suited to the nature of the environment and ground conditions e.g., off-road use, suitable for unprepared surfaces, uneven terrain and soft ground conditions?

Does the plant have suitable operator restraint and ROPS fitted?

- Seat belts and harnesses fitted (as appropriate) and always worn by occupant(s)?
- ROPS fitted to all off-road plant and earthmoving equipment?

Operator competency

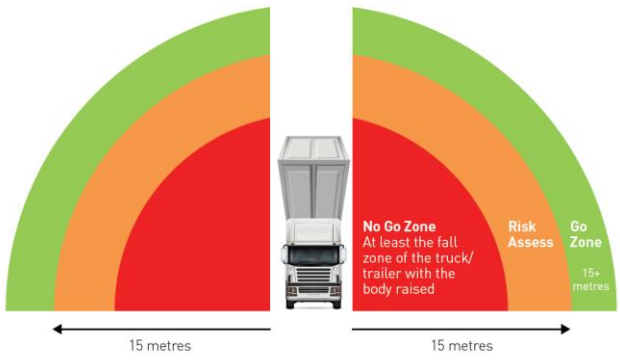
- Do operators hold the necessary High Risk Work licences and/or drivers' licences for the plant being operated?
- Have operators been deemed competent to operate the prescribed items of plant via a Verification of Competency process (where appropriate).

Assess site conditions

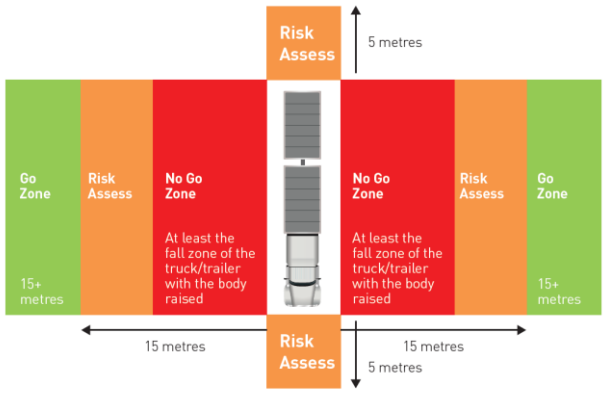
- Are the site conditions consistent with those anticipated during planning activities?
- Has anything changed, and if so, is the selected plant suitable for the changed conditions?
- Does the activity need to be paused until hazards posed by the changed site conditions have been addressed?

Exclusion Zone

- Does the activity require an Exclusion Zone to remove all unnecessary plant, equipment and personnel from the potential fall / rollover area?
- Has the Exclusion Zone been clearly demarcated with physical demarcation fencing and signage?
- Is there a specific control over the entry of personnel into the Exclusion Zone?



End Tipper Unloading Exclusion Zones – side view



End Tipper Unloading Exclusion Zones – helicopter view