



Machinery falling into voids

Issued November 2018

In the 2017-18 financial year, the frequency rate of machinery falling into voids was nearly double that for the previous year. These incidents have the potential to cause serious injuries, including fatalities. A formal team-based risk assessment should be done to identify hazards and control measures before any work starts near open stopes or other voids.

This snapshot covers the 5 year period from 1 July 2013 to 30 June 2018 when 1 injury and 25 notifiable incidents were identified as machinery falling into voids.

@DMIRS_WA

Department of Mines,
Industry Regulation and Safety

Number of incidents



25 notifiable incidents were related to **machinery falling into voids** over the 5 year period

1 resulted in an injury

Notifiable incidents by area

13 of the 25 notifiable incidents occurred during **surface operations**



12 of the 25 notifiable incidents occurred during **underground operations**



Incidents by commodity (top 5)



13 of the 25 incidents were **gold**



4 of the 25 incidents were **iron ore**



4 of the 25 incidents were **nickel**

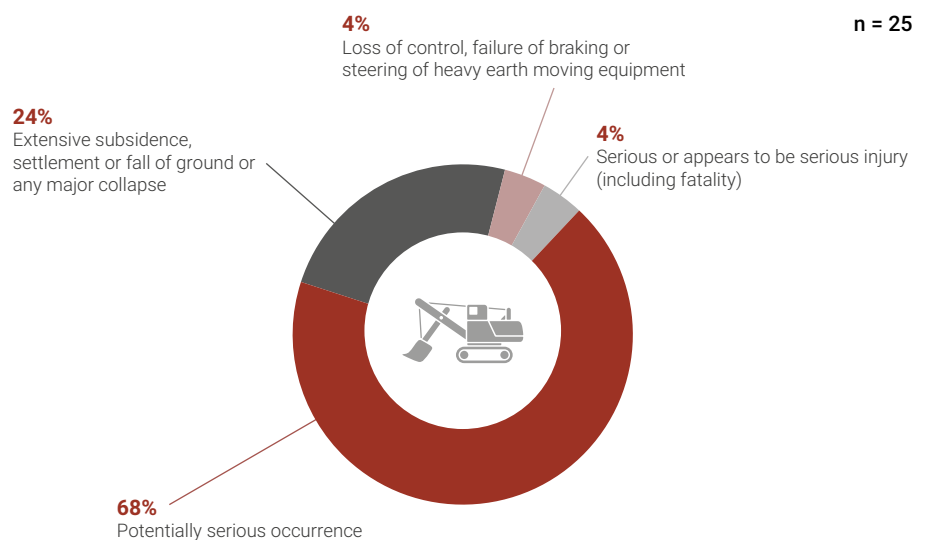


3 of the 25 incidents were **copper, lead and zinc**

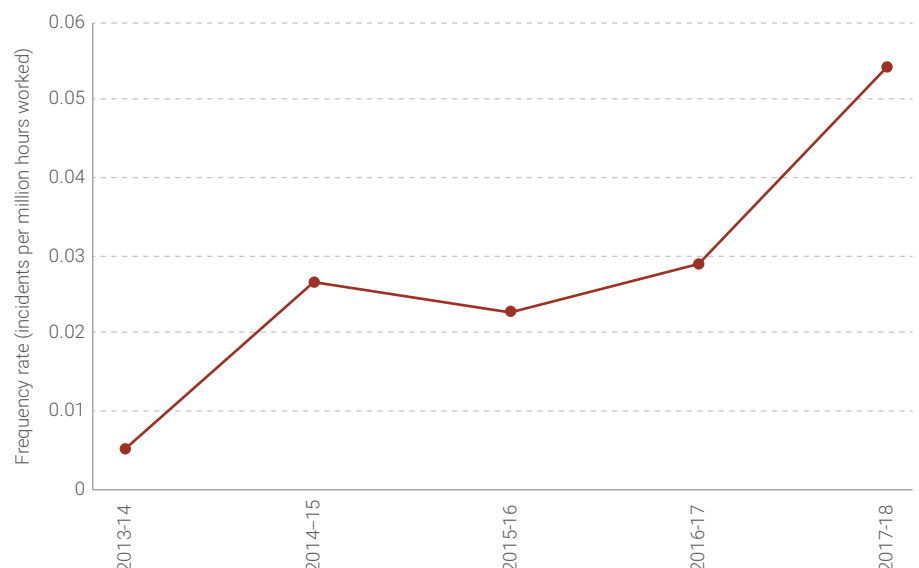


1 of the 25 incidents was **heavy mineral sands**

Notifiable incidents by reporting category



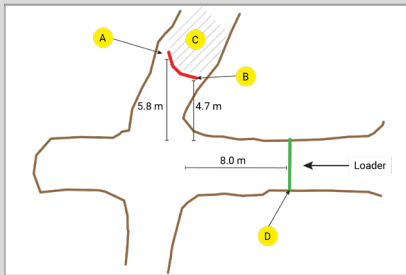
Frequency rate by year



Spotlight on Mines Safety Significant Incident Report No. 265

Manned loader falling into an open stope

3 August 2018



Level plan showing the direction the loader was travelling, as well as the brow pick-up (A), the edge of the open stope (B), the void (C) and the location of the restricted access sign (D) in the drive.

Contributory causes

- No visual markers on the wall for the operator to position the bund safely.
- Reduced operator visibility:
 - the edge to an open stope was located on a bend
 - the loader was still articulated at the point of tipping (poor operator visibility)
 - there was limited lighting.
- The operator misjudged the location of the edge leading into the void.

Spotlight on Mines Safety Significant Incident Report No. 234

Light vehicle driven partly over edge of open stope

9 December 2015



Light vehicle attached to loader with chain

Contributory causes

- Management relied on the lower order control of signage with no hard barriers to prevent access to the top of the open stope.
- The signage process in the site's signage procedure was inconsistent (i.e. reliance on a second sign being in place that was not).
- There was no official procedure for conducting a cavity monitoring survey.
- There was insufficient detail in the procedure for working around an open hole (which is different from working at heights).



Are we learning from past mistakes?

Incident from 2011



During the tele-remote loading of ore from a stope, the backfill on which the loader was working, subsided (approximately 3 m). The loader did not fall, although it was suspended by its bucket and rear tyres which were on solid ground. The backfill material had been undercut by a loader on the previous shift, working on the level below. At the time it was determined that the amount of material would not cause any subsidence – a decision that proved to be incorrect.

Incident from 2018



A load-haul-dump (LHD) truck driver was pushing broken ore up into a stockpile in an underground mine in preparation for load/haul operations. When he noticed the material was falling away forward of the LHD's bucket, he reversed the LHD and shut it down. He got out to investigate and found that the broken ore was falling down into a void and there were no "open hole" markings in place. He barricaded the area and notified the shift supervisor who inspected the work area and suspended work.

Safe work practices

Examples include:



Sites should implement a procedure for working around open stopes or voids



Investigate then prepare and backfill open holes as soon as possible

DANGER

Appropriate hard barricading should be established at the front of an open void. Access to the void needs to be closed to prevent personnel from entering



Clearly mark all areas. The marked area should provide a margin of safety to allow for the lack of certainty of the exact position and size of voids below. This is particularly important on the hangingwall side of any stope void



Do not approach open holes. Keep others well away from the area until barriers have been erected by authorised persons



Recheck all marked areas after rain or water build up on any bench, and after each primary blast