

April 2021

EXTRACTIVES - MINING OPERATIONS

Excavator tip-overs

This safety alert highlights the serious health and safety risks involved when operating excavators.

What happened?

In the last 18 months we have been notified of five excavator tip-overs on mine sites. There was no loss of life but all incidents could have resulted in a fatality.

Excavators are commonly used on mining and quarrying sites and effective controls around their use are critical for operator safety.

Multiple factors resulted in the incidents, but machines operating in unsafe areas was common in all incidents.



INCIDENT 2: The excavator tipped over a one-metre high face/canch. A lone operator had placed his tracks close to the canch edge and was trying to remove a parting. The bucket grabbed and pulled the excavator over the edge



INCIDENT 1: The excavator tipped off the raised dirt platform from which it was loading trucks. The excavator moved to the ore stockpile pile to load another truck. One track was over the edge of the pile. The operator then slewed the machine to loadout, and the machine rolled when the weight transferred to the unsupported track



INCIDENT 3: An excavator crossed a small culvert onto unlevelled ground with the bucket elevated, causing the excavator to tip over



INCIDENT 4: The excavator was tramping beside a mine pond when the ground gave way. The excavator track dropped down and the excavator tipped into the pond



INCIDENT 5: The operator positioned an excavator close to the bench edge above an overhang which collapsed due to the machine's weight. The excavator fell approximately four metres

What can be learnt from the incidents?

Operators must not be put into a position in which there is a high risk of tip-over.

Safety rules should be constantly followed to ensure, for example, that:

- the site operator must have systems to ensure work is planned and operating areas assessed prior to work by the supervisor and machine operator
- digger operators do a dynamic risk assessment before starting each job
- the safest route is selected when moving and excavator around the site
- there is never digging underneath an excavator
- work is always carried out a safe distance from the edge of a face
- Standard Operating Procedures should be written where possible
- work areas are designed to control the hazards
- roll-over protection is fitted to all cabs including excavators, and ensure operators wear seat belts and keep doors closed
- there are always two exits from the excavator.

Mitigation controls to protect health and safety include:

- fitting ROPs structures
- operating using vehicle seat belts and doors closed
- providing secondary emergency egress from the cab.

Where can you find information on the safe use of excavators?

Information on safe use of excavators can be found in our good practice guidelines: [Health and safety at opencast mines, alluvial mines and quarries](#)

AUTHORISED BY PAUL HUNT, CHIEF INSPECTOR EXTRACTIVES
ISSUED BY WORKSAFE NEW ZEALAND