

Safety Bulletin

Mines Inspectorate

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Preventing excavators from rolling over

Excavators — used in mines and quarries to clean-up benches, side cast material from benches and load trucks from stockpiles and overburden dumps — often operate on uneven ground, narrow working pads and near edges and ramps. The risk of rolling over, therefore, is high, unless precautions are taken.

Recent examples:

- A 30 tonne excavator rolled onto its side while reversing from the loading face and backing off its working pad.
- A 20 tonne excavator slid off a working pad and rolled onto its side when the ground beneath one of the tracks subsided while it was slewing.
- An excavator slid back down the face of a 2 metre high bench and rolled onto its side as the operator reversed the machine.
- An excavator toppled onto its side when the right-hand corner of the bench collapsed while it was loading a dump truck.
- A 75 tonne excavator overbalanced and toppled onto its side when the operator picked up an oversized rock and slewed the bucket out and over the face.



Common factors contributing to these high-potential incidents were:

- poorly constructed and narrow working pads
- uncompacted ground
- working too close to the edge of benches or ramps, and
- not applying basic risk-management principles, particularly hazard identification.

Recommendations to reduce the risk of roll-overs:

1. That excavators be fit for the intended purpose (i.e. appropriate machine specifications in terms of size, working load and reach).
2. That working pads be adequately compacted and constructed so their length and width are at least 50 per cent greater than the length and width of the excavator.
3. That, when working on benches, excavator tracks be parallel to the face and positioned an adequate distance from the edge taking into account the stability of the edge in terms of geological structure, blast damage and undercutting.
4. That operator training and assessment take into account specific conditions and activities at the site.
5. That operators understand Original Equipment Manufacturer operating instructions, including load limits at various boom extension distances, stability parameters, and safe operating procedures.
6. That risk-management practices and procedures be in place and complied with by workers.

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