SAFETY ALERT
PREVENTING THE COLLAPSE OF EXCAVATIONS

March 2011

The purpose of this alert is to remind employers and principal contractors to ensure the stability of excavations before workers enter them.

BACKGROUND
An unsupported trench wall, up to three metres in height, collapsed onto three workers. The collapse resulted in the death of one worker and serious injuries to the others. The workers were constructing a bungy pool for exercising horses when the soil gave way and, together with a steel beam, collapsed onto them. In the photo below, note the indented trench wall that collapsed, the collapsed soil, and the excavated soil. The temporary support was constructed for emergency retrieval purposes.

Excavation with collapsed trench wall
CONTRIBUTING FACTORS

Trench and excavation collapses pose a significant risk to workers and can occur with little or no warning. Excavated ground that appears stable may not necessarily be stable. Even if the ground is stable, this may change over time.

The following factors may contribute to unstable conditions:

- The depth of the excavation.
- The nature of the ground or soil, including its reaction to the elements (e.g., ground exposed to rain may become unstable).
- Slip planes in the soil and fractures/faults in rocks.
- Water content, including the inrush of water.
- Nearby in-ground services.
- The placement of and vibration from plant.
- The storage of excavated material near the edge of the excavation.
- The proximity of buildings and other structures.

ACTION REQUIRED

Construct a ground support system, steel shield or walls battered back at a safe angle where ground conditions have not been assessed as being stable.

Before you start excavating, do the following to prevent collapse:

- Complete a site specific risk assessment that accounts for the above risk factors.
- Where unstable conditions are identified, obtain advice from an appropriately qualified engineer who can complete a geotechnical analysis.
- Consider the use of shoring, earth retention equipment or other appropriate measures for all excavation work, based upon the risk assessment and the specialist advice.
- Complete a documented safe work method statement for trenches and excavations at depths greater than 1.5 metres. Consider the activities around and within the excavation, including the type and weight of any plant used in the vicinity of the excavation.
- Where control measures involve the use of a shoring system, benching or battering, ensure that an appropriately qualified person designs and supervises their construction.
- Ensure that a competent person is engaged to regularly inspect and supervise the progress of the excavation work.
- Consult with workers on the controls measures to be used.
- Ensure that site security is in place to prevent unauthorised access.
- Ensure that fall prevention and access/egress systems are in place.
- Ensure that underground services are located and not affected.
- Develop emergency procedures for an excavation collapse.

During excavation work, ensure that safe work procedures are implemented and activities are supervised. When changes to site specific conditions occur, the procedures may have to be amended. Maintain site security and your emergency procedures. If deficiencies are detected in the excavation, shoring, benching or battering, you must stop the work and evacuate the excavation. Only resume work when the deficiencies have been rectified and an appropriately qualified engineer has verified the safety of the excavation.
FURTHER INFORMATION

- The Occupational Health and Safety Act 2000 requires employers and those in control of workplaces to take all necessary steps to ensure that safe systems of work are implemented and maintained, and that persons undertaking them are provided with adequate information, training and supervision to ensure their safety.

- Part 8.5 of the Occupational Health and Safety Regulation 2001 provides more specific obligations for excavation work.

- The Code of practice excavation work provides employers, self-employed people and workers with advice on preventing injuries during excavation work on construction sites, including how to establish controls that prevent the collapse or failure of trenches and open excavations.

- The code can be obtained by contacting WorkCover at workcover.nsw.gov.au or the WorkCover Assistance Service on 13 10 50.