

# Safety and health alert

## 14/00 Cave-in causes concrete block to slide onto worker

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### Incident

At a Forrestfield shopping centre in June 1997 a licensed electrician was digging a trench to lay electrical cables, ready for connecting to a transformer. Sand had been excavated to a depth of between 500 and 700 mm along the length of a concrete plinth on which a transformer stood. The trench started 400 mm away from the edge of the plinth. The transformer had a mass of approximately 4580 kg and the plinth weighed approximately 1300 kg.

As the electrician and his assistant dug along the trench, sand from the sides of the trench began running into the bottom of the trench. Concentrating on extricating the sand the workers may not have noticed that the sand falling into the trench was undermining the plinth.

Without any prior warning the transformer and the plinth slid into the excavation trapping the electrician.

### Factors

1. Failure to check the compaction of the ground either prior to the installation of the plinth or before commencing to dig the trench. The sand was clean fill brought in at the commencement of the job.
2. Digging a trench along side a plinth with a transformer was taken as a matter of course rather than undertaking a risk assessment of the particular job.
3. Unless trained, workers cannot be expected to foresee every hazard that they face because they are not part of the initial planning and installation process.
4. Digging along a concrete plinth, wall or structure must always be considered inherently unsafe.

### Recommendations

1. Conduct a risk assessment each time digging is to take place, to ensure that the risks are identified and steps to control the risks are taken prior to work commencing.
2. Due to the number of contractors involved in the installation of new transformers, written procedures must be introduced to ensure that any person carrying out work clearly understands what standard of work has previously been completed by others.
3. The installation of a new concrete base for a transformer must follow the guidelines provided by Western Power. The base is now an inverted concrete culvert, the sides of the culvert become in-built shoring, which will provide a far greater level of safety than a flat piece of concrete placed on a sand base.



4. Compaction of subgrade soil to be a minimum modified density ratio of 92% in accordance with AS 1289.5.2.1, for a depth of 600 mm below culvert base. In clean sand this could be measured as 8 blows / 300 mm with a standard penetrometer.

## Further Information

Further information can be obtained from the WorkSafe internet site [www.worksafe.wa.gov.au](http://www.worksafe.wa.gov.au), or by contacting customer service on 1300 307 877 or email: [safety@docep.wa.gov.au](mailto:safety@docep.wa.gov.au).

A414379

Date: April 2000

