

MINE SAFETY INVESTIGATION UNIT

INFORMATION RELEASE

Fatality

Incident date	9 September 2014
Event	Track mounted excavator tip over
Location	Karuah Quarry, Karuah NSW

Overview

An excavator operator was using a track-type hydraulic excavator above a quarry bench. The excavator was on uneven ground with a cross gradient. The excavator tipped over resulting in the death of the operator. The investigation is continuing.



Image 1: Resting position of excavator at top of quarry face - Photograph by Investigation Unit

The mine

Karuah Quarry is part of the Hunter Quarries Pty Ltd group and is on Andesite Road near the corner of The Branch Lane and the Pacific Highway, Karuah, 50 km north of Newcastle.

The quarry mines andesite, a hard igneous rock, which is processed into blue metal rock in a range of sizes for building and landscaping projects.

Material is extracted by drill and blast methods and loaded by excavator into off-road dump trucks for removal to the dump station. The quarry production is capped at 500,000 tonnes per year.

The incident site

The incident occurred at the top of a quarry face on the northern side of the void. A formed mine road runs from a stockpile area to the top of the face.

The face is about 20 metres to the east of the road and pad area, with the intervening space comprised of sloping unimproved ground. The gradient of this slope will be determined as part of the ongoing investigation.

The site had rainfall on previous days.

There was a vertical drop from the top of the face to the bench below of about 12 metres.

A number of large rocks and boulders were sitting on the sloping ground above the quarry face and the bench below.



Image 2: Bench and quarry face –showing rock in excavator bucket - Photograph by Investigation Unit

The task being carried out

The worker was operating the excavator at the time of the incident.

The purpose of the task being undertaken is under investigation.

The plant being used was classified as a large excavator by the original equipment manufacturer, with a mass of 45 tonnes or more.



Image 3: Position of excavator between road and face - Photograph by Investigation Unit

The incident

The incident occurred about 8am on 9 September 2014.

The excavator rolled onto its left-hand side, down slope, resulting in fatal injuries to the operator.

A large rock was positioned between the excavator's track marks.

The excavator bucket was found to be holding a large rock weighing about 3 tonnes.

Investigators are examining what factors caused the machine to exceed its tipping point.

The Mine Safety Investigation Unit is investigating this incident. An investigation report will be prepared for the Secretary of NSW Trade & Investment.



Image 4: Orientation of superstructure to the track frame on excavator - Photograph by Investigation Unit

Observations

Excavators are used in mines and quarries for a range of mining-related purposes, including cleaning up benches and loading trucks. They often operate on uneven ground, narrow working pads and near edges and ramps. The risk of roll over and tip over, therefore, is high, unless precautions are taken.¹

The risks associated with excavators traversing or operating on cross slopes are well known. Particular care must be taken when operating on slopes or near excavations and open holes.

Planning for the work must include identification of hazards, risk assessment and control. The operating environment should be examined to ensure:

- the ground beneath the working area is stable and free from faults, fractures and soft areas
- there is no moisture or water present in the earth or rock below the equipment
- work is not carried out close to the edge or in the zone of influence of an excavation or any previously disturbed ground.²

Mine operators, designers of plant and suppliers are also reminded of their work health and safety obligations, which include but are not limited to³:

¹ DEEDI, 'Safety Bulletin: Preventing Excavators from Rolling Over' (18 April 2011) DNRM <[www.http://mines.industry.qld.gov.au](http://mines.industry.qld.gov.au)>

² WorkCover, 'Safety Warning for Working with Excavators' (22 July 2010) WorkCover NSW <www.workcover.nsw.gov.au/>.

³ *Work Health and Safety Act 2011*.

- provision of fit for purpose plant
- provision of adequate supervision, instruction and training
- management of risks to any person on their worksite using the 'Hierarchy of Controls'
- design of plant to ensure risks to health and safety are managed
- design of mine to ensure risks to health and safety are managed

The *Work Health and Safety Regulation 2011* contains general duties of a person involving the management or control of plant.⁴

All persons conducting a business or undertaking that operate earth moving machinery are, in particular, reminded of their obligations under clauses 214 and 215. These clauses require management of the risks to health and safety of powered mobile plant overturning and the use of operator protective devices.

Furthermore, mine operators should consider the application and effect of clause 217 to their own particular circumstances. This clause requires a person with management or control of earth moving machinery at a workplace to ensure that it is not used unless it is securely fitted with a protective structure.

A protective structure means a structure designed to protect the operator from injury from falling objects or if the machinery rolls over.⁵ Consideration should also be given to tip over and flying object protection to protect operators.

Issued by
Steve Orr
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About this information release

The Mine Safety Investigation Unit has issued this information to draw attention to the occurrence of a serious incident in the mining industry. The investigation is ongoing. Further information may be published as it becomes available.

The information contained in this publication is based on knowledge and understanding at the time of writing. However, because of advances in knowledge, users are reminded of the need to ensure that the information upon which they rely is up to date and to check the currency of the information with the appropriate officer of the Department of Trade and Investment, Regional Infrastructure and Services or the user's independent adviser.

Information about the Investigation Unit and its publications can be found at:
www.resourcesandenergy.nsw.gov.au/miners-and-explorers/safety-and-health/major-investigations

For information about health and safety regulation on mine sites contact a mines inspector at one of our local offices:
www.resourcesandenergy.nsw.gov.au/miners-and-explorers/safety-and-health/mine-safety-offices

⁴ *Work Health and Safety Regulation 2011* cls 203-206.

⁵ *Work Health and Safety Regulation 2011* cl 217.