

MINE SAFETY INVESTIGATION UNIT

INFORMATION RELEASE

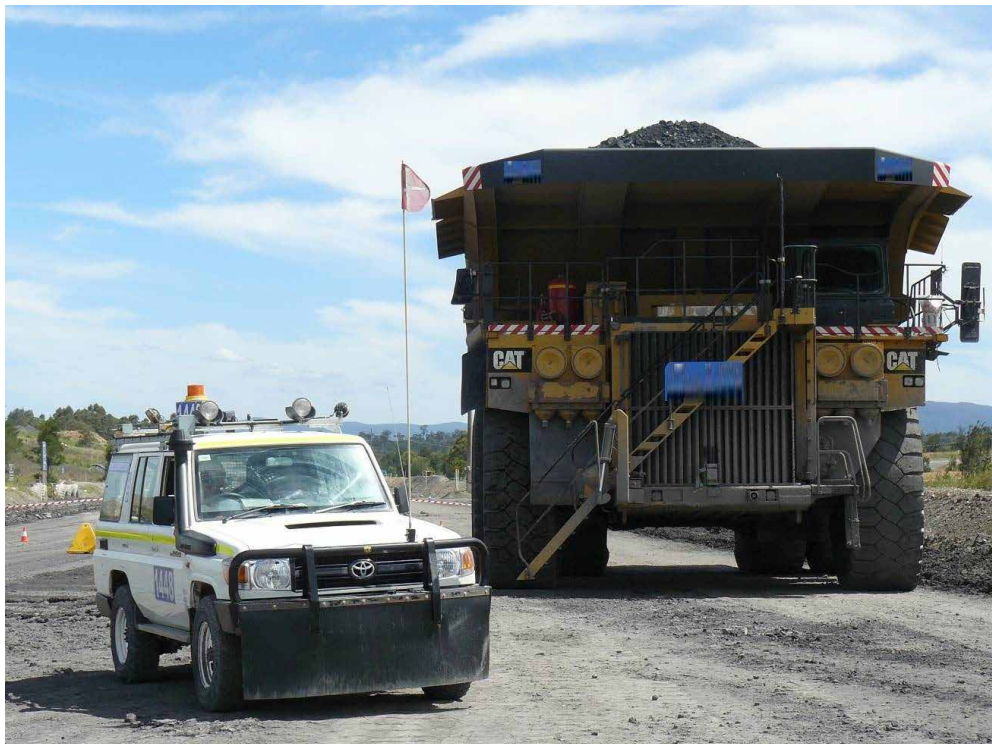
Fatality

Date	Incident occurred on 30 November 2013
Event	Collision between haul truck and light vehicle
Location	Ravensthorpe Open Cut Mine, Ravensthorpe, NSW

At a glance

A large haul truck collided with, and ran over, a light passenger vehicle on a main haul road at an open cut coal mine. The light vehicle was entering the multi-purpose haul road around midnight on a weekend shift.

The collision resulted in the death of the light vehicle driver.



Similar light vehicle and truck at the intersection in daylight

Photograph by Investigation Unit

The mine

Ravensworth Surface Operations contains two active open cut mining areas near Singleton, NSW. Overburden is removed in one open cut by dragline and truck and loader operation, and by truck and shovel in the other. Coal is mined at both open cuts by front-end loader or shovel into trucks which haul to the coal crushing plant. Ravensworth Surface Operations can produce up to 16 Mt of run-of-mine (ROM) coal per year.

The incident

The incident occurred just before midnight on 30 November 2013. A light vehicle (LV) was being driven by a trainee plant operator working at the mine. She was an employee of a labour hire company and had ten months experience in the coal mining industry.

After delivering a haul truck to a stockpile area the worker drove the LV, a Toyota Landcruiser, back toward the main haul road. It appears that the light vehicle has entered the main haul road at a T-intersection, and made a right hand turn across the main haul road onto the left hand side of the road.

A fully laden Caterpillar 793D rear dump truck (RDT) hauling coal was also approaching the intersection. The orientation was such that the LV was entering the road on the right hand side (the blind side) of the RDT.

The RDT collided with the LV, resulting in damage to the vehicle. The driver of the light vehicle suffered fatal injuries.

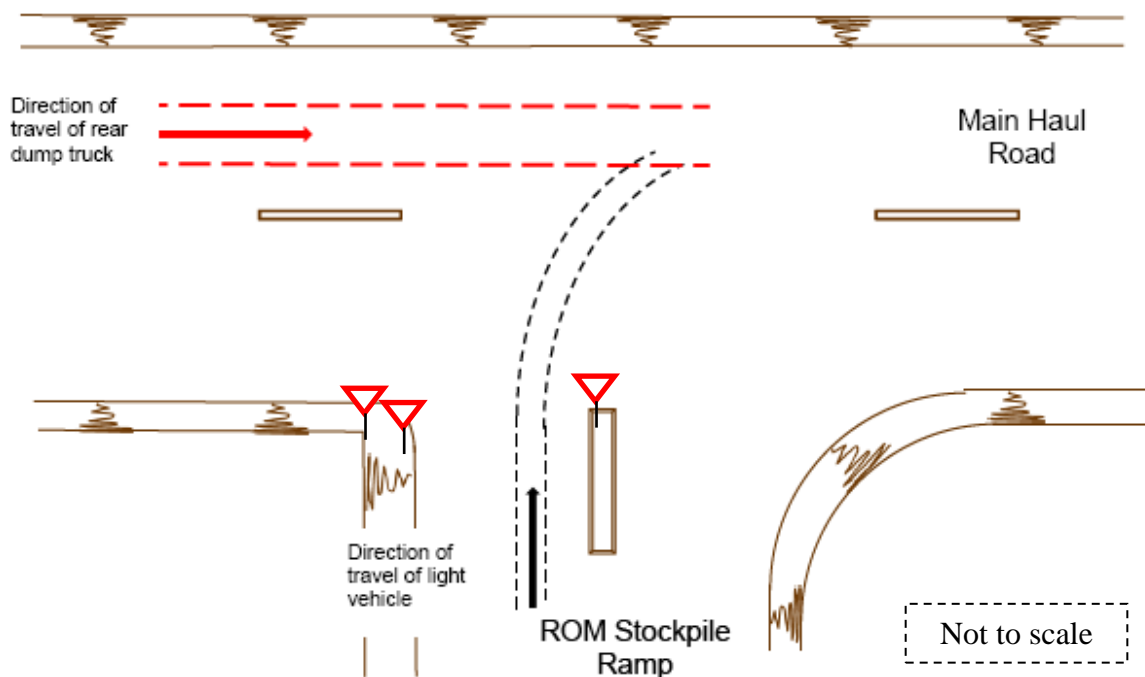


Illustration of intersection – does not depict actual scene *Sketch by Investigation Unit*

The T-intersection

The incident occurred at an intersection between the main haul road that ran from an open cut coal mining area, and a ramp adjacent to a ROM coal stockpile area.

The stockpile ramp entered at right-angles to the main haul road. The stockpile ramp had a short dividing centre windrow at the intersection.

'Give Way' signs were posted in the centre windrow and the windrow on the left side of the ramp at the intersection.

The cross-point on the centre of the haul road was marked by a gap between two small windrows in each direction with two white marker posts and 'Keep Left' signs in each windrow.

The surface transport management arrangements at the mine are such that heavy mine trucks and light vehicles operate on the same roads. However traffic control rules require they must remain separated by a minimum of 50 metres while moving and adhere to signage controls in place. The mine does not require two-way radio communication at intersections where signs are in place.

Conditions

The incident occurred at night. The intersection was not illuminated by any specific, purpose designed intersection lighting, but there was ambient illumination from a workshop opposite the intersection. It was not raining at the time, although earlier rainfall had left the roadways wet and muddy.

The haul truck

The CAT 793D mining truck is one of the largest rear dump trucks operating at a surface mine in NSW. The truck has a payload of 240 tons (218 tonnes) and has a top speed loaded of about 54 km/h. When loaded, 33% of the weight is distributed over the front axles. The gross operating weight is about 380 tonnes.¹

The operator's cab is situated on the left hand side of the truck and is almost 5 metres above the ground. As can be seen in the diagram below, the truck operator has very limited vision for at least 20 metres off to the right side (blind-side) of the truck for anything that is less than 2 metres tall. The truck operator's vision is further restricted by the cab rollover protection structure, mirrors, handrails and other equipment on the truck cab deck.

The LV had a pole and flag attached to its bonnet as depicted in the photograph on page 1.

¹ Source; <http://australia.cat.com/equipment/off-highway-trucks/mining-trucks/793d> 18/12/13

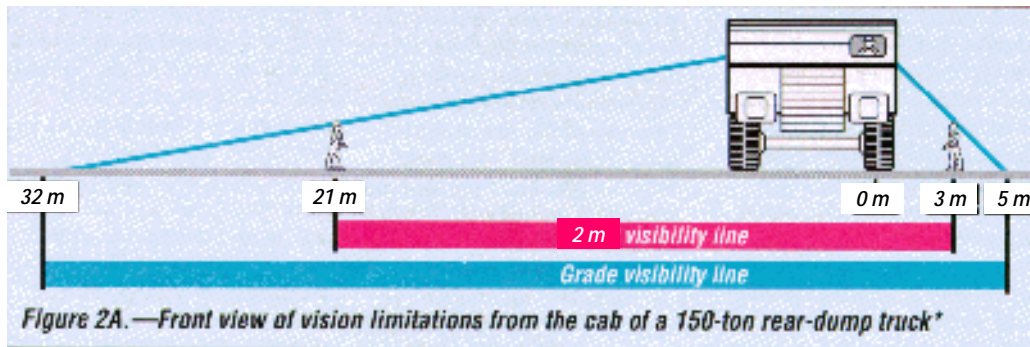


Illustration of blind spots around a mining truck (from Miller, 1975)²
 Illustration indicative of vision from a large RDT, distances shown are approximate.

Observations

The Mine Safety Investigation Unit has begun a formal investigation into the incident. An investigation of this type will inevitably examine the relevant provisions of safety legislation, and current best practice. This will include an enquiry into the implementation of the hierarchy of control measures as expressed in safety legislation, and whether technology and engineered methods are available to increase the reliability and effectiveness of controls in place to prevent the identified hazard.

This incident highlights a significant hazard associated with interactions of large mobile mining equipment and other vehicles at all mining operations. The hazard has been recognised in mine safety legislation, which requires that a Major Hazard Management Plan be established for surface transport operations, stating how the health and safety of people who work at the mine will be protected from the hazard.

Investigators will examine, among other things:

- haul road design, including intersection design;
- control measures for separating heavy from light vehicles;
- night driving conditions and visibility;
- traffic control systems and intersection speeds;
- communication systems; and
- collision avoidance and proximity detection systems.

The investigation will also consider whether the collision prevention controls in common use at NSW mines have a high reliance on human behaviour (procedural safeguards).

² Miller, Wayne K., "Analysis of Haulage Truck Visibility Hazards at Metal and Nonmetal Surface Mines-1975," MESA Information Report 1038, 19 pp.

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.resources.nsw.gov.au/safety/major-investigations

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

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