



## Mines Safety Significant Incident Report No. 152

### Haul truck and light vehicle collision

#### Incident

An unloaded Caterpillar 789C haul truck and light vehicle collided at a controlled mine intersection. The right side front and rear wheels of the haul truck ran over and crushed the cab of the light vehicle. The light vehicle driver sustained fatal injuries. Cutting equipment was used to free the light vehicle driver.

The incident was re-enacted with an exemplar truck and light vehicle, based on information derived from the interviewing of witnesses and the road marks visible after the collision. It appears that the combination of the alignment of the (terminating) haul road as it intersects the main (through) haul road and the converging speeds of both vehicles may have placed the light vehicle behind the right side 'A' pillar of the haul truck's roll over protection structure (ROPS), where it may not have been clearly visible to the haul truck driver. Similarly, the light vehicle driver's view of the haul truck as he approached the intersection may have been obscured by the light vehicle's internal rear vision mirror.

#### Immediate causes and contributory factors

- The intersection was not designed and constructed at a 90° angle.
- The slight uphill grade from the terminating road to the intersection.
- The curvature of the main haul road.
- Both drivers' fields of view were restricted at the intersection due to poor sight approach lines and distances, windrow height and vegetation on the windrows.
- The speed at which the haul truck entered the intersection.
- Possible restriction of the haul truck driver's field of vision due to the cabin ROPS frame structure and the fact that the light vehicle was approaching from the right (blind) side of the haul truck.
- Possible restriction of the light vehicle driver's field of vision due to the rear vision mirror, which may have obscured a clear view of the haul truck approaching the intersection.
- A lack of auditing, risk assessments and maintenance of the intersection.

#### Comments and preventative actions

- Perform regular documented traffic management audits and risk assessments on all intersections to identify potential collision hazards.
- Develop a site traffic management plan.
- Where determined by a risk assessment or where sight distances at intersections are less than prescribed in Australian Standard AS 1742.2:1994 *Manual of uniform traffic control devices – Traffic control devices for general use*, 'STOP' signs should be utilised instead of 'GIVE WAY' signs at intersections.
- Ensure traffic signage is regularly maintained and not obscured by vegetation, poles or other signage.
- Ensure vegetation is regularly removed or trimmed from windrows on approaches to intersections.
- Ensure windrows are tapered down to 0.75 m near intersections to increase visibility.

- Ensure terminating roads are positioned at 90° to through roads to allow for maximum sight distances.
- Intersections should be placed in safe locations away from vertical or horizontal alignment changes.
- Approaches to intersections should be constructed at a flat (0%) grade for a minimum distance of the length of the longest vehicle using the intersection.
- Consider lowering speed limits on through roads at intersections that are deemed to be high risk as a result of formal risk assessment.
- Install median bunding to ensure right angle entry to roads and to slow speeds of turning vehicles (bunding should be set 2 m back from through road to allow good visibility).
- Consider separation of light and heavy vehicles by means of separate mine access roads for light vehicle use only.
- Ensure daily inspections of haul roads and intersections are carried out by a competent person.
- Ensure that operators are informed of road and traffic management changes at the work site when they have returned from time off.
- All vehicle types should be examined for potential blind spots and attempts should be made to eliminate or reduce them.
- Ensure that all vehicle operators are aware of residual vehicle blind spots.
- Consider fitting both heavy and light vehicles with proximity detection devices.

A handwritten signature in black ink, appearing to read 'M J Knee', is written over a light grey rectangular background.

M J Knee

STATE MINING ENGINEER

26 February 2009