# Investigation information release

Date: March 2024

## Two workers injured when truck tyre explodes

**Incident date:** 8 February 2024

**Event:** Two workers were injured when a semi-trailer truck tyre exploded

**Location:** Clovass Quarry, Clovass NSW

### Overview

Two workers were injured while inspecting a semi-trailer truck tyre for an air leak while it was being inflated. The tyre's side wall ruptured, causing an explosive release of air pressure.

### The mine

Clovass Quarry is an open cut quarry near Casino in the Northern Rivers area of NSW. The quarry is operated by Holmes's Pty Ltd and produces aggregates for various infrastructure and civil projects primarily around northern NSW and southeast Queensland. The quarry uses mobile plant and equipment to crush and screen extracted materials, and has a fleet of road trucks that transport the extracted materials. The quarry employs about 50 workers including truck drivers, fitters, mechanics and administration staff.

### The incident

During maintenance work at the quarry workshop, a flat tyre was identified on the inside rear axle of a B-double semi-trailer truck on 8 February 2024.

Two quarry workers (a truck driver and mechanic) removed the tyre and wheel assembly from the truck's trailer axle so it could be inspected for damage and/or leaks. This was done to determine whether it could be repaired or replaced.

Once removed, the truck driver took it to a tyre-fitting machine in an area adjacent of the workshop. He visually inspected the tyre for any signs of damage or leaks but did not find any.

The mechanic was asked to assist with another task and left the area. A second truck driver offered to assist.

The 2 truck drivers:

- loaded the tyre and wheel assembly onto the tyre-fitting machine, operating its controls to secure and lift it as shown in Figures 1 and 2 below. This was done to allow the machine to rotate the tyre so it could be further inspected for damage and/or leaks.
- connected the workshop's compressed air system to the tyre via an air line hose by removing the tyre's valve stem and connecting a high-flow valve coupling (as shown in Figure 3). This caused air to flow into the unseated tyre.
- seated the tyre bead onto the wheel rim using a hand-held compressed air tank to create a sufficient seal that caused the tyre to inflate.

Figure 1: Front view of tyre and wheel assembly fitted to the tyre-fitting machine after the incident


Figure 2: Rear view of tyre and wheel assembly fitted to tyre-fitting machine after the incident

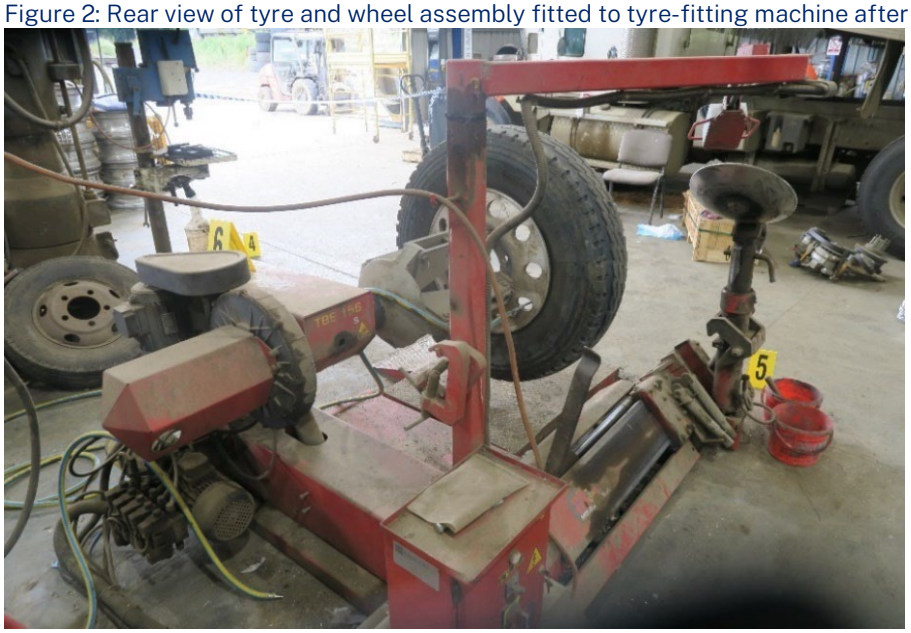
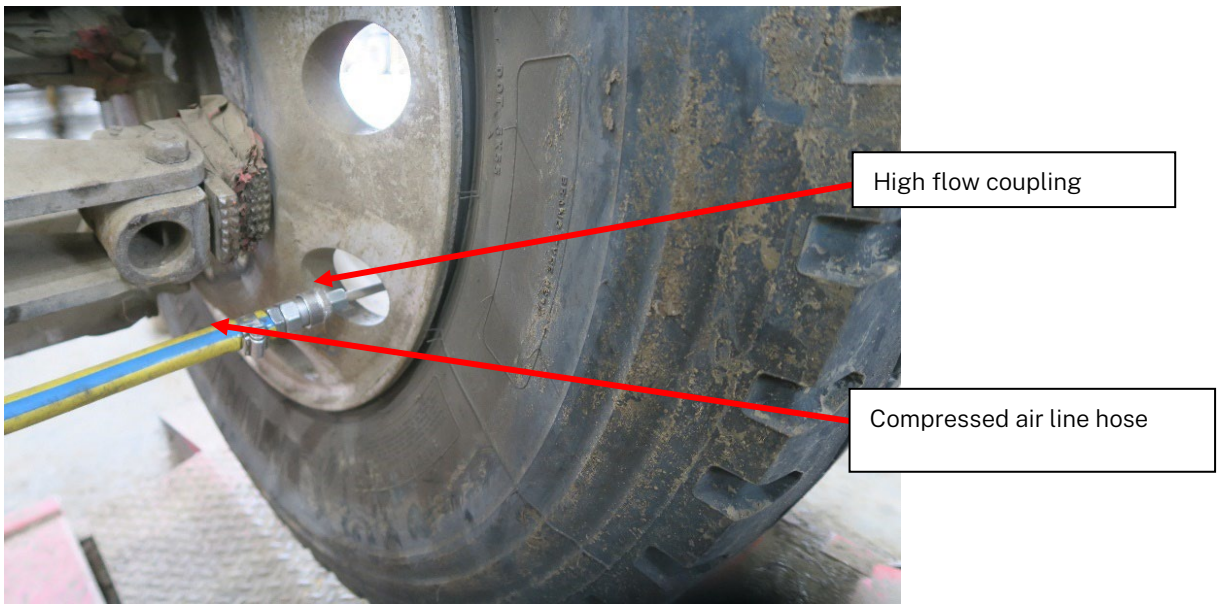


Figure 3: Compressed air line hose and high-flow coupling fitted to the tyre and wheel assembly




As the tyre began inflating, one of the truck drivers returned the hand-held compressed air tank to its storage location a few metres from the rear of the tyre-fitting machine. The other truck driver began rotating the wheel using the tyre-fitting machine's controls, while spraying the tyre tread with a soapy solution. This process was used to identify air leaks, which would cause bubbles in the solution and would make a popping noise. He was in front of the rotating tyre, in close proximity, while spraying and looking for bubbles.

Around this time, a third worker attended the area and also began watching for air leaks in the soapy solution. This worker was near the right-hand side edge of the tyre's front face and was not wearing eye protection.

The workshop's compressed air line system continued to pump air into, and inflate, the tyre. Shortly after, there was a loud bang and the 2 workers at the front of the tyre were hit with debris and explosive air pressure. The air pressure knocked one worker to the floor and tore off his shirt. He was later found to have suffered perforated ear drums, hearing loss, cuts and bruises. The other worker was hit directly in the face with debris and later found to have suffered an eye injury.

Inspection of the tyre after the incident identified a rupture of its side wall (as shown in Figure 4).

Figure 4: Front view of tyre showing side wall failure

First responders immediately assisted the injured workers, rendering first aid until emergency services were contacted and paramedics arrived. The workers were treated at the scene and then taken to Lismore hospital for further assessment and treatment. Both workers were released later that day but require ongoing medical treatment.

## The investigation

The Regulator has commenced an investigation to determine the cause and circumstances of the incident that will explore, among other things, the:

- system of work at the quarry governing the inspection, maintenance, repair, leak detection and inflation of truck tyres
- configuration and operation of the plant and equipment involved in the incident
- instruction, training, experience and supervision of workers
- adequacy of risk assessments, work instructions and procedures relevant to the plant and equipment and task being performed at the time of the incident
- adequacy of the quarry operator's safety management system including control plans and associated procedures governing the management of mechanical engineering hazards and risks
- work practices of the quarry workers regarding inspection, maintenance, repair, leak detection and inflation of truck tyres.

The quarry operator and workers are assisting with the investigation. A report will be published at the conclusion of the investigation.

## Safety information

Quarry and mine operators are reminded of their duty to identify hazards and manage risks to health and safety in accordance with provisions of the *Work Health and Safety Act 2011* and *Work Health and Safety (Mines and Petroleum Sites) Act 2013* and Regulations.

In particular quarry and mine operators must:

- develop and implement a safe system of work for inspecting, repairing and maintaining tyres that, among other things, take into account that a damaged tyre may be prone to failure during inspection
- ensure procedures for detecting tyre leaks incorporate, where reasonably practicable, appropriate controls including:
  - conducting an inspection of a tyre to confirm its integrity before inflation
  - restricting tyre inflation air pressures for the purpose of confirming bead seating/lock ring engagement on multi-piece wheel assemblies and leak detection
  - restraining tyres using safety cages or similar devices while they are being inflated
  - positioning workers clear of potential trajectory paths of a failed tyre with clear exclusion zones identified

- provide workers with adequate instruction and training about how to identify and control risks to health and safety associated with performing inspection, repair and maintenance tasks on tyres, including the implementation of exclusion zones to keep workers clear of potential trajectory paths of failed tyres
- ensure compressed air plant and equipment used to inflate tyres is adequately configured to allow tyre pressures to be readily monitored, controlled and restricted to safe levels.

Workers are reminded of their duty to take care for their own health and safety and that of their co-workers. They must also comply with reasonable work instructions, policies and procedures.

In particular, workers must:

- thoroughly inspect tyres to identify damage and confirm their integrity before introducing air pressure for the purpose of detecting leaks
- be aware of their surroundings and never position themselves within identified exclusion zones or the potential trajectory path from a tyre failure when working in close proximity to tyres being inflated
- comply with safe work procedures, hazard identification and risk management processes, and always wear appropriate personal protective equipment while working within hazardous work environments.

## Further information

Please refer to the following guidance materials:

- NSW Resources Regulator Safety Alert SA13-10 Tyre exploded during inflation
- SafeWork NSW Tyres, compressed air and split rims
- Safe Work Australia General guide for split rims

## About this information release

The Regulator has issued this information to draw attention to the occurrence of a serious incident in the mining industry. Further information may be published as it becomes available.

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