

INVESTIGATION REPORT

DANGEROUS INCIDENT AT BOGGABRI MINE

Failure to adequately control falling object hazard



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Introduction

A dangerous incident occurred at the mechanical workshop at Boggabri Mine on 31 January 2022. Three workers were preparing to remove a wheel hub and strut from position one of a Komatsu 930E dump truck when the wheel hub fell to the ground, narrowly missing the workers. None of the workers were injured as a result of the incident.

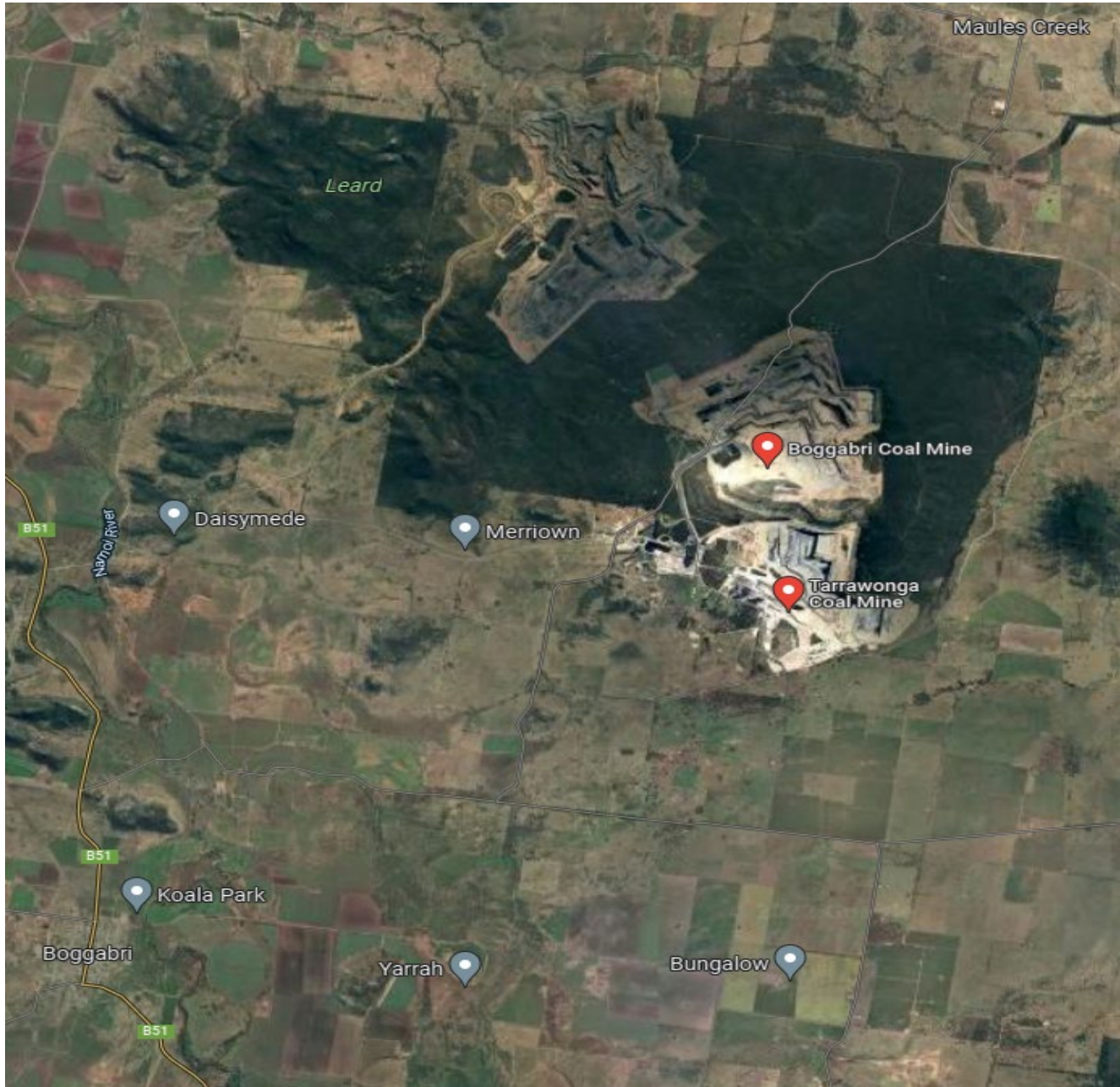
Figure 1 The incident scene.



The mine

Boggabri Coal Mine is an open cut coal mining operation in the Gunnedah basin, near Boggabri. It recovers multiple coal seams. The mine is operated by Boggabri Coal Operations Pty Ltd.

Figure 2 Satellite view of Boggabri district



Timeline of events

At the start of night shift (5.30 pm on 30 January 2022), the work crew was allocated the task of continuing with maintenance on a Komatsu 930E dump truck after the pre-shift toolbox talk. The truck was prepared for maintenance and delivered to the workshop bay by the preceding dayshift crew who had prepared parts and tooling and had the positions 1 and 2 (front left and right) wheels removed. The

work team prepared a JSEA for the task, which was reviewed and signed off by their supervisor. There was not a site-specific procedure for the task however the original equipment manufacturer (OEM) procedure was available, the JSEA adopted a method different to the OEM procedure for supporting the wheel hub when being separated from the strut.

The work team progressed through the disconnection and removal of various steer cylinders, linkages and brake hosing and then the steering arm from under the spindle hub, making use of tooling and aids such as a tracked lifting platform. A 150-tonne floor jack was positioned under the left-hand side (**position 1**) brake hub. The hub to strut retaining plate was removed from the strut. The OEM wheel hub splitting tool was installed on the hub. Bolts were installed on the splitting tool and progressively tightened in a circular pattern.

The wheel spindle hub was separated from the strut. The weight of the hub was supported on the floor jack and movement temporarily constrained by the taper of the strut still being inside the hub. The hub began to turn around the taper joint, slipping on the top of the jack. The hub fell to the floor with the 3 workers in close proximity. This occurred around 3 am.

The supervisor and other workers in the area attended to render assistance if required, however no injuries occurred. The incident scene was preserved, and the Resources Regulator was notified. An inspector was deployed to the site and further investigation initiated.

Causal factors

Based on the investigations conducted by the mine and by mine safety inspectors, the following factors were identified as contributing to the incident.

- The hub fell as it was not appropriately supported on a single point. When the hub moved it toppled off the jack as it was not restrained.
- The method of supporting the hub/spindle assembly with only a floor jack while separating the taper had become an accepted practice on site. Neither the mine nor the inspectors' investigation could determine when this occurred.
- Change management and risk review was not conducted to vary from the OEM procedure.
- Although the separation of the hub and supporting it was identified as a hazard in the JSEA completed by the work crew, the significance of the falling object hazard and the requirement for a method to ensure it was secured was not fully appreciated.

Recommendations

Mine operators are recommended to consider the following when reviewing this incident:

- When procedures vary from OEM or existing site procedures, a change management process should be followed to identify any additional risks.
- Subject matter experts and workforce representation should be included during the risk management process. This includes when identifying hazards and determining controls for tasks including major component replacement.
- Mine operators should provide appropriate task specific tool and equipment available to minimise falling object and other hazards for major component change out.
- When supporting loads, the potential for loads shifting during all steps of the process should be assessed.
- When large, bulky or awkwardly shaped components are being changed, suitable aids such as frames and jigs should be provided and used by workers.