

Serious injury

Incident date: 10 August 2017

Event: Serious burns while refuelling mobile plant

Location: Mt Arthur Coal Mine, Muswellbrook NSW

Overview

A worker suffered serious burns when diesel ignited while refuelling a tyre handler at the mine. Other workers rushed to the scene and rendered first aid. The worker was treated by paramedics before being flown to the Royal North Shore Hospital by the Westpac Rescue Helicopter. The NSW Resources Regulator has commenced an investigation into the incident.

Photograph 1: The tyre handler at the refuelling bay.



The mine

Mt Arthur Coal Pty Ltd, owned by BHP Billiton PLC operates the Mt Arthur Coal Mine 5 km southwest of Muswellbrook, NSW. The large, open cut mine uses a strip mining method to remove overburden and coal by shovel and excavators. Haul trucks transport the overburden and coal to onsite processing and transport facilities. The mine is operated 24 hours a day, seven days a week. The mine produces coal for domestic and international energy sector customers.

The incident

At 9.38 am on 10 August 2017, a contract worker, aged 29, sustained serious burns to his arm, torso and face while refuelling a diesel powered tyre handler at the mine's heavy vehicle refuelling bay.

The worker suffered serious burns and was flown to the Royal North Shore Hospital in Sydney for treatment.

The worker is employed by a contractor who provides tyre management services to the mine.

During the morning, the worker drove the tyre handler, a large forklift with tyre handling attachment (Photograph 1) to the heavy vehicle fuel bay near the mine's workshop.

At the fuel bay, the worker attached a fuel splash filler nozzle adaptor to the 800 lt/m fuel line via a Banlaw quick connect fuel nozzle (see Photograph 2).

Photograph 2: Fuel splash filler nozzle adaptor attached to Banlaw quick connect fuel nozzle.



When attached the adaptor made a free-flowing nozzle that enabled plant to be refuelled without a quick connect coupling.

The tyre handler's fuel tank did not have a quick connect fitting. Once connected, the worker rested the fuel nozzle in the fuel tank of the tyre handler and went to a nearby switchboard to activate the fuel pump.

When the pump was activated the fuel nozzle ejected from the fuel tank under pressure causing fuel to spray over the tyre handler.

The worker then grabbed the fuel nozzle and attempted to control it as fuel continued to spray over the tyre handler, himself and the surrounding area.

At that time, the fuel ignited setting the worker, the tyre handler and surrounding area on fire.

The worker suffered serious burns.

Other workers rushed to the scene and helped the worker to an emergency shower at the mine's workshop to cool his burns and rendered first aid. Mine paramedics and NSW Ambulance paramedics treated the worker onsite before he was flown to the Royal North Shore Hospital by the Westpac Rescue Helicopter.

Mine emergency response personnel and other workers isolated the fuel supply to the fuel bay and extinguished the fire using a fire tanker and two water carts.

The tyre handler and fuel bay sustained significant damage.

Plant and equipment

An examination of the fuel splash filler nozzle identified that it was not suitable for the refuelling task and enabled pressurised fuel to flow out of the nozzle in an uncontrolled manner. This uncontrolled pressure allowed the fuel to come into contact with potential ignition sources such as the tyre handler's hot engine, turbo, exhaust system and other electrical equipment.

The investigation

NSW Police and NSW Ambulance Service responded to the incident.

Resources Regulator inspectors and investigators also responded.

The Resources Regulator has commenced an investigation to determine the cause and circumstances of the incident.

The mine operator and contractor are cooperating with the investigation.

An investigation report will be prepared for the Secretary of the Department of Planning and Environment.

Safety observations

Mine and petroleum site operators are reminded of their duty to provide safe plant and equipment and ensure the health and safety of workers in accordance with the provisions of the *Work Health and Safety Act 2011* (NSW) and *Work Health and Safety (Mines and Petroleum Sites) Act 2013* (NSW) and Regulations.

Fuel fires can occur while mobile plant is being refuelled. Refuelling fires have occurred on graders, excavators, drill rigs, pump sleds and water carts. Ignition sources can include contact with hot engine components, electrical equipment, batteries and static electricity.

The use of suitable fuel fittings is essential. Under no circumstances should unsuitable fuel fittings or adapters be used to modify refuelling systems. High pressure and high flow fuel systems should not be used for refuelling smaller plant and equipment that does not have the appropriate refuelling fittings.

Mine operators should ensure that the correct refuelling fittings are used and consider the provision of alternative methods of refuelling such as in field service trucks or low pressure pumping systems to refuel plant without quick connect fittings.

Mine operators must also ensure that workers are adequately trained in the safe use of refuelling systems and provide emergency showers and first aid facilities in the vicinity of refuelling facilities. Workers should also wear appropriate personal protective equipment when refuelling plant.

Further information

Please refer to the following guidance materials:

- Safety bulletin [SB15-03 Fires ignite while refuelling mobile plant with quick-fill fuel systems](#)
- Australian standard AS/NZS ISO 2801:2008 Clothing for protection against heat and flame - general recommendations for selection, care and use of protective clothing.

About this information release

The Resources Regulator has issued this information to draw attention to the occurrence of a serious injury in the mining industry. Investigations are ongoing and 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 Planning and Environment or the user's independent adviser. All photographs were taken by the Resources Regulator.

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