NSW Resources Regulator

Investigation report

Report into the death of Stephen Norman
at the Rix's Creek Coal Mine, Singleton, NSW,
on 13 December 2016

NSW GOVERNMENT

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Executive summary

Overview

Stephen Norman, 53, was fatally injured at the Rix's Creek Mine about five kilometres northwest of Singleton, NSW, on 13 December 2016. The mine operator was Bloomfield Collieries Pty Ltd (Bloomfield). Mr Norman was an employee of RW & LM Simmons (Simmons), a partnership that provided transport services to Bloomfield at the mine.

Mr Norman and two other workers manually cleaned out a coal haulage trailer between 7.10am and 7.50am. The method the three workers used to access the trailer involved Mr Norman prying open the tailgate at the rear of the trailer while the other two workers lifted the tailgate up. This allowed Mr Norman to prop open the tailgate with a handmade tool. Mr Norman then entered the trailer through the open tailgate and used a shovel to clean away the coal residue that had built up in the trailer. Mr Norman then exited the trailer without incident and removed the tool that was used as a prop.

Mr Norman and two other workers attempted to manually clean out another coal haulage trailer using the same method between 9.00am and 9.30am. However, Mr Norman had trouble getting the prop in place while the tailgate was being held open. The tailgate fell and Mr Norman's head was crushed between the tailgate and the rear of the trailer body causing serious head injuries.

Mr Norman was given first aid and transported by rescue helicopter to hospital. Mr Norman died on 15 December 2016.

Safety observations

- → This incident highlights the hazards associated with suspended and unsecured plant and equipment.
- → In this case, the system of work was unplanned, ad-hoc and unsupervised.
- → There was no risk assessment conducted in relation to the works being undertaking.
- → The wash bay facilities at the mine were not used by the workers on the day of the incident.
- → The use of the wash bay would have eliminated or minimised the risk.
- → The workers were not adequately trained in hazard identification and risk control.
- → The workers were not adequately supervised.
- → The implementation of the safety management system and procedures concerning contractor management was not effective.

Remedial measures

Following the incident, Bloomfield:

- → required Simmons to appoint an onsite supervisor to oversee work activities
- → trained Simmons workers in hazard identification and risk control
- → required Simmons to construct an onsite office for the onsite supervisor
- → created a position of contractor manager to oversee the activities of contractors
- → reviewed how contractors were managed.

Following the incident, Simmons:

- → appointed an onsite supervisor and constructed an onsite office
- → updated their safety management system
- → commenced toolbox talks with workers
- → completed job safety analysis (JSA) for tasks
- → developed safe work procedures for tasks including cleaning out the trailers at the wash bay.

Industry recommendations

It is recommended that mine operators:

1. develop and implement a safety management system that sets out the provisions for the management of contractors as required by clause 14 of the Work Health and Safety (Mines and Petroleum Sites) Regulation 2014
2. give contractors clear written directions to prepare a contractor management plan or use the safety management system of the mine
3. ensure that contractors are appropriately trained, supervised and monitored to ensure compliance with the safety management system and contractor management plan
4. ensure that workers do not undertake any work underneath suspended and unsecured plant and equipment
5. ensure that plant and equipment is cleaned at fit-for-purpose facilities
6. ensure that fit-for-purpose access and egress points are installed on all plant and equipment including haulage trailers
7. provide training to workers about the dangers of working under suspended and unsecured loads.

Contents

1. Purpose of the report

This report describes the mining workplace incident investigation conducted by the NSW Resources Regulator's Major Investigations Unit into the cause and circumstances of the incident.

The report has been prepared to support the objects of the work health and safety legislation and share learnings about the incident so that proactive steps can be taken to improve industry safety and prevent similar incidents from occurring.

2. Investigation parameters

2.1. Major Investigations Unit

The Major Investigations Unit (MIU) investigates the cause and circumstances of major incidents in the NSW mining, petroleum and extractives industry. The MIU's role is to carry out a detailed analysis of serious incidents and report its findings to enhance industry safety as per the Resources Regulator's compliance and enforcement policies.

2.2. Investigation scope

The MIU had authority to investigate this matter as the incident occurred at a mining workplace. The investigation was conducted under the Work Health and Safety Act 2011 (WHS Act) and the Work Health and Safety (Mines and Petroleum Sites) Act 2013 (WHSM Act).

The investigation focused on:

- → identifying the cause and circumstances of the incident
- → identifying whether individuals and companies complied with the WHS Act, WHSM Act and associated Regulations
- → assessing the suitability of existing control measures
- → identifying human and organisational factors that may have contributed to failure of control measures
- → identifying how future incidents of this nature can be prevented.

2.3. Human and organisational factors

The MIU used a human and organisational factors assessment tool to analyse the action(s) that preceded the incident to identify the human and organisational factors that influenced the actions of those involved.

The influencing factors involved were:

- individual factors
- job factors including tasks demands, tools and equipment (ergonomics)
- work environment
- team factors such as supervision and work practices including team/individual risk management practices, and
- human and organisational factors including safety management systems, other organisational arrangements and organisational culture.

2.4. Legislative authority to investigate

MIU investigators are appointed as government officials under the WHSM Act and are deemed to be appointed as inspectors for the purposes of the WHS Act – which includes the powers of an inspector under the WHS Act for mining workplaces. The Resources Regulator has also delegated some additional functions to inspectors, including exercising the power to obtain information for the purposes of monitoring and enforcing compliance with the WHS Act.

2.5. Resources Regulator's response to the incident

Bloomfield reported the incident to the Resources Regulator at 10.24am on 13 December 2016.

On 13 December 2016, the Resources Regulator deployed an inspector, MIU investigators and emergency response personnel to the mine to undertake the management and assessment of the incident scene. Activities undertaken on that day included:

1. controlling access to the scene
2. taking photographs
3. collecting exhibits
4. interviewing witnesses.

The inspector issued Bloomfield and Simmons with prohibition notices under section 195 of the WHS Act requiring both entities to ensure that no people worked in, on or about the tailgate of the trailer of the coal haulage trucks at Rix's Creek Mine.

The mine operator submitted an incident notification form to the Resources Regulator on 14 December 2016.

As part of the investigation, MIU investigators undertook the following:

- Analysed the incident scene.
- Seized the truck and trailer involved in the incident.
- Assessed the trailers used for coal haulage by Simmons at the Rix's Creek Mine.
- Issued statutory notices for the provision of information and documents.
- Conducted recorded interviews with workers and staff from Bloomfield and Simmons.
- Collected information from the Simmons office.
- Analysed departmental files relating to the mine.
- Analysed large volumes of information and records obtained during the investigation.

- → Identified the causal chain of events that led to the incident.
- → Identified what risk assessment, control measures and training were in place at the time of the incident.
- → Identified remedial actions taken by the parties involved.

2.6. Investigation information release

The Resources Regulator published an investigation information release on 23 December 2016.

The publication, IIR16-08 Fatality after being struck by truck tailgate, drew attention to the importance of managing the risk to health and safety arising from working on or around plant and equipment. It identified the serious risk falling plant poses to workers' health and safety. It noted that appropriate control measures are required to prevent objects from falling.

The information release also recommended that:

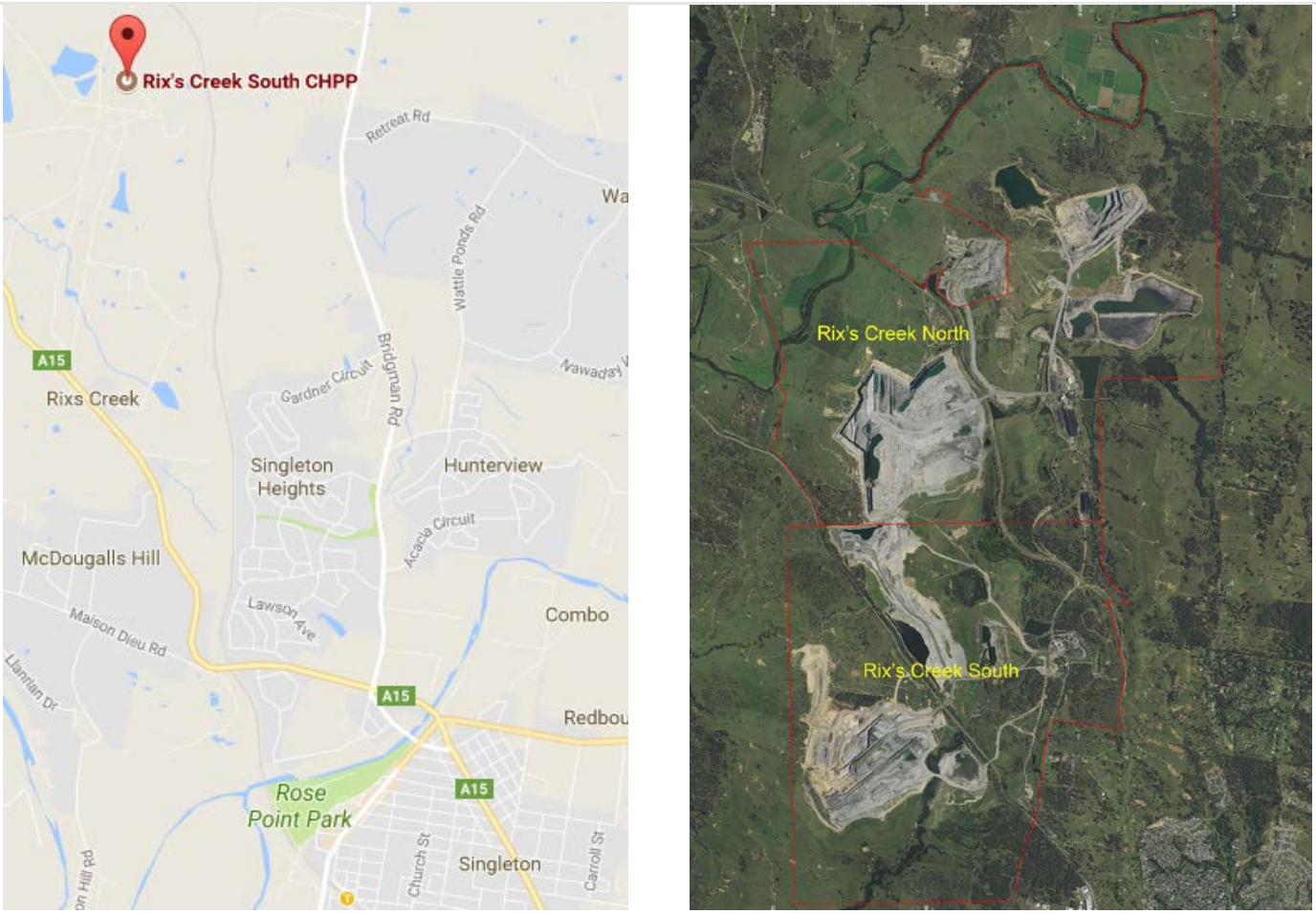
- → workers should not undertake any work underneath suspended and unsecured plant and equipment
- → plant and equipment should be cleaned at fit-for-purpose washing facilities that eliminate the need for people to work underneath suspended and unsecured plant and equipment
- → fit-for-purpose access and egress points should be used to access plant and equipment
- → trailers and truck trays should have safe access points.

3. Rix's Creek coal mining operation

Rix's Creek is an open cut coal mine about five kilometres northwest of Singleton, NSW. The mine complex comprises two areas identified as Rix's Creek North and Rix's Creek South as shown in figure 1.

In 2016, the mine had 236 workers comprised of staff and contractors.

Figure 1: Location of Rix's Creek South Mine



In 2016, Rix's Creek North produced 462,393 tonnes of saleable product and Rix's Creek South produced 1,377,148 tonnes of saleable product. Rix's Creek South operated three shifts a day, 15 shifts a week for 48 weeks a year. Day shift operated between 6.30am and 2.30pm, afternoon shift 2.30pm to 10.30pm and night shift 10.30pm to 6.30am.

3.1. Mine holder and mine operator

Bloomfield is the holder of coal mining lease 352 (CL352) that includes the Rix's Creek South mine. Bloomfield is the mine operator for Rix's Creek.

CL352 was renewed on 16 November 2009. The boundary of CL352 is shown in figure 2.

Figure 2: Boundary of coal lease, CL352

3.2. Mining activity at Rix's Creek

Coal has been mined at Rix's Creek since 1990. The mine uses a multi-seam open cut bench system that mines up to nine coal seams of the Whittingham coal measures.

A range of heavy earthmoving equipment is used at the mine for overburden removal and coal mining. An onsite coal handling and processing plant (CHPP) prepares the run-of mine coal into both thermal coal and high quality semi-soft coking coal products for overseas and domestic customers.

After processing, the product coal is stored temporarily in a large coal storage bin nearby. Simmons trucks are positioned beneath the hopper at the bottom of the bin and the trailer loaded.

Simmons' trucks transport the coal from the CHPP coal bin to the rail loader where the coal is dumped on coal stockpiles ready for loading onto trains. The coal is transported by rail to Newcastle in, NSW, for export.

Simmons was required to keep the product coal storage bin below a set level to prevent the bin from overflowing. If it is not, an alarm was triggered that shuts down the CHPP.

4. The employer

Stephen Craig Norman was employed by the family partnership L Simmons & R Simmons, trading as RW & LM Simmons.

At the time of writing, the Simmons business had two operations:

1. coal haulage at the Rix's Creek mine
2. another haulage business, carting chicken manure from chicken farms as part of clean outs and the supply of sawdust to the farms.

At the date of the incident, the partnership had been operating for approximately 35 years.

5. Simmons and the mine

At the time of the incident, Simmons had provided coal haulage at Rix's Creek mine for about 23 years, starting with one truck and building up their capacity as circumstances required.

There was no written contract between Simmons and Bloomfield or any entity connected to the mine at the time of the incident. Simmons operated at the mine under a 'handshake deal'.

6. The worker

6.1. Profile

Mr Norman, was employed by Simmons and had worked as a truck driver at the mine for about 13 years. Due to the mine's increase in washed coal volumes, Simmons was required to put on extra trucks and employ more drivers. As a result, Mr Norman's duties changed to become a maintenance-type worker and back-up truck driver in September 2016. His new duties included activities such as bringing tyres to site, washing trucks, greasing trucks, transporting trucks offsite for maintenance and general fill-in when required.

6.2. Training

Bloomfield's contractor management plan required Simmons to provide competent workers. To ensure compliance, the mine required Simmons to provide:

- → a copy of the worker's current NSW drivers licence
- → a statement of competency
- → an order 41 medical (a requirement under the Coal Industry Act 2001 for employers of a coal mine – a worker is to undertake periodic health assessments).

In addition to this, the mine had sighted the Simmons training register document. Apart from the National Heavy Vehicle Training, there was no evidence that Simmons provided any additional training to their workers at the mine before the incident.

The training provided to Mr Norman by Bloomfield during the 13 years he was working at the mine site is shown in table 1.

Table 1 Training provided to Mr Norman.

Year	Provider	Training
2009 2011 2013	Bloomfield Collieries Pty Ltd	Contractor induction
2009 2011 2013	Bloomfield Collieries Pty Ltd	Site orientation
2012	Bloomfield Collieries Pty Ltd	Operate highway coal truck
2012	Bloomfield Collieries Pty Ltd	Production employee induction
2014	Bloomfield Collieries Pty Ltd	Toolbox talk (20 minutes) - My Safe Job launch
2014	Bloomfield Collieries Pty Ltd	Toolbox talk (20 minutes) - Five to stay alive topic
2015	Pegasus (online) on behalf of Bloomfield Collieries Pty Ltd	Contractor induction

The training Simmons provided to Mr Norman was a part of the haulage operator's recognition under the National Heavy Vehicle Driver (NHVD) accreditation scheme for maintenance of the trucks. This required training in areas such as what items on the truck need to be checked daily, filling out correct documentation, the required reporting, how to record and report faults, and how to ensure faults were fixed.

There were no meetings held between Simmons and Bloomfield to discuss training needs of the Simmons workers engaged at the Mine. Simmons did not have a formal training plan in place for their workers.

6.3. Cause of death

The death of Mr Norman was caused by a traumatic brain injury resulting from Mr Norman's head being crushed between a coal haulage trailer and the tailgate of the trailer.

7. The incident location

The incident occurred within the coal lease on an area near the coal handling preparation plant (CHPP) as shown in figure 3.

Figure 3 Location of the incident.

8. Equipment involved

The coal haulage truck was a Volvo prime mover (registration CG 50 MV) with a Muscat MT2103 tipping trailer (registration W68252) as shown in figure 4.

Figure 4: Truck and Muscat trailer involved in the incident.

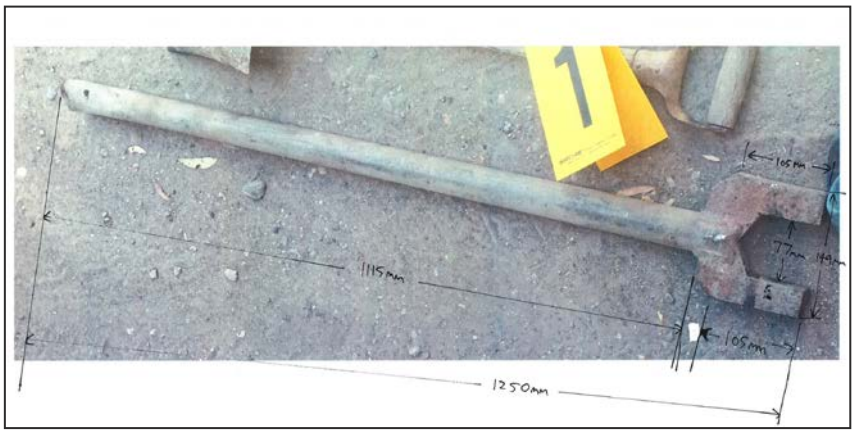
Mr Norman used a shovel to pry open the tailgate and propped it open with a handmade tool (pipe wrench) as shown in figure 5.

Figure 5: Handmade tool and shovel.

8.1. Handmade prop

The tool used as a prop during the incident was a handmade tool described as a pipe wrench or breaker bar. It was 1250 mm in length as shown in figure 6. This tool had been on the site for many years and was used by Mr Norman for several different functions that he carried out at the mine site.

Figure 6: Handmade tool used to prop open the tailgate of the Muscat trailers.



8.2. Trailer tailgate

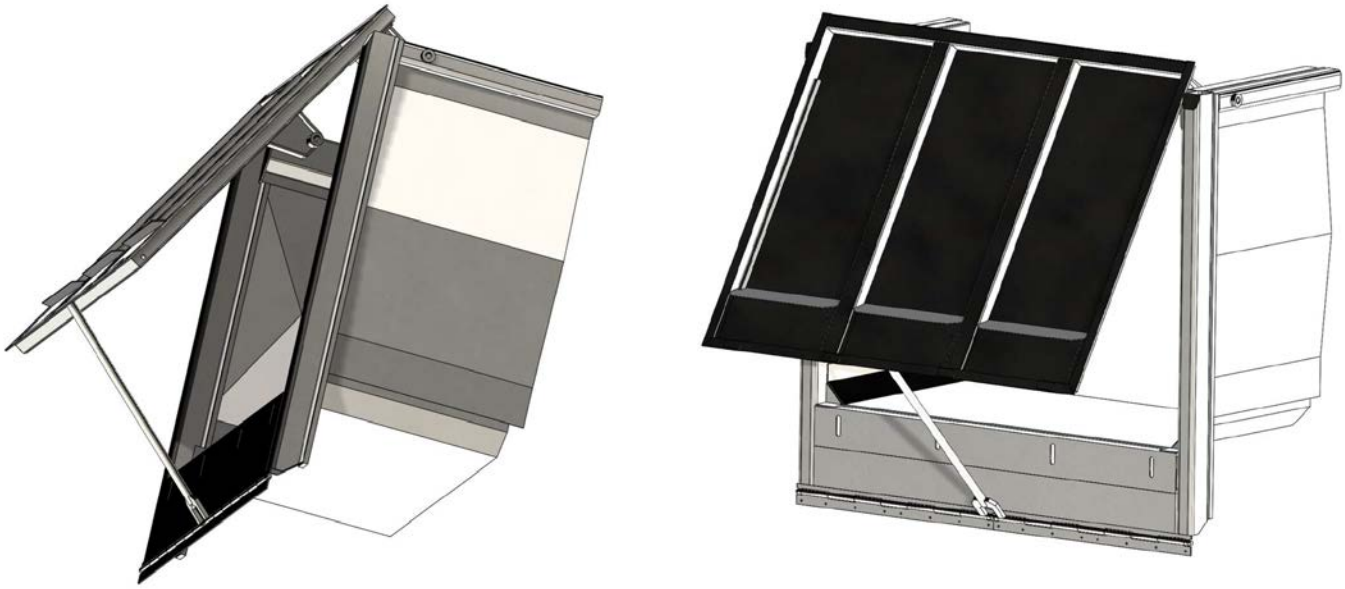
The Muscat trailers have mechanical locking devices on the rear known as fingers, which are used to keep the tailgate closed.

Figure 7: Trailer locking devices.

The exact location where Mr Norman attempted to prop the tailgate cannot be definitively established.

A witness stated that Mr Norman placed the prop with the pipe end under the lip of the tailgate and the forked end with the forks in a horizontal position against the hinges at the rear of the trailer, as shown in figure 8.

Figure 8: Position of the prop to open the tailgate.



8.3. Marlin and Muscat trailer differences

Simmons was in the process of updating its fleet of trailers used at the mine site. They were replacing the existing Marlin trailers with new Muscat trailers.

The differences between the trailers are shown in figure 9.

Figure 9: Differences between the Marlin and Muscat trailers.

Muscat trailer	Marlin trailer
	
The Muscat trailers were 2130 mm longer than the Marlin trailers.	

Muscat trailer	Marlin trailer
	
The floor of the Muscat trailer was 150 mm lower to the ground than the Marlin trailer, which made it easier to attempt the manual lift.	
	
The Muscat trailer did not have any outside access into the trailer whereas the Marlin trailer had vertical access rungs on the front of the trailer.	

Muscat trailer	Marlin trailer
	
	

The tailgate on the Marlin trailer had an extension lip on the tray that protruded past the tailgate.

Muscat trailer	Marlin trailer
	
The Muscat trailer did not have the hoist intruding into the trailer whereas the Marlin trailer did.	
	
The Muscat trailer being a tri-axle tipper tipped with only the rear axle and last line of tyres staying in contact with the ground whereas the Marlin trailer, being a chassis tipper, tipped with all three axles and tyres staying in contact with the ground.	

8.4. Muscat trailers introduced to site

Simmons reported that they relied on the fact the trailers had previously hauled coal at West Wallsend Colliery as evidence of suitability. Simmons also believed that the engineering certificate and roadworthy certificate satisfied Bloomfield's requirements. Accordingly, Simmons did not carry out an operational risk assessment for the Muscat trailer.

Bloomfield has an over-arching policy that sets out the requirements for safe plant and equipment that comes onto and is used at the mine known as the *Bloomfield Group Engineering Management* document. The 'Introduction of plant management system' sits underneath the over-arching policy with a further engineering standard for on highway trucks also included.

Bloomfield determined that the Muscat trailer met the requirements of the engineering standard for on-highway trucks and trailers as the Muscat trailers were registered to be used on public roads. Therefore, an operational risk assessment was not conducted.

9. Timeline of events

7 September 2016

The Resources Regulator shared a safety alert publication of SafeWork NSW, 'Heavy vehicles or trailers hitting or crushing workers' with mines in NSW. The September 2016 safety alert identified precautions to be taken when working on trucks and trailers.

A Resources Regulator inspector emailed the safety alert to the mine with a message that it had implications for all workers.

5 October 2016

The mine provided a copy of the SafeWork NSW safety alert to Simmons.

November 2016

Simmons began using the Muscat coal haulage trailers at the mine.

2 December 2016

Mr Norman reported that he could no longer clean out the trailers at the mine wash bay.

11 December 2016

Mr Norman reported to Simmons that someone from the mine had told him he was not allowed to use the wash bay to clean out the inside of the coal haulage trailers anymore due to coal getting into the sump.

12 December 2016

Mr Norman did not work.

Two Simmons workers discussed the need to work out a way to clean out the trailers.

13 December 2016

At the start of shift, Simmons workers discussed cleaning out the trailers at the mine wash bay.

When a truck arrived at the wash bay, Mr Norman directed the truck to the park-up area.

At the park-up area, Mr Norman had a pipe with a fork at one end (pipe wrench) and a shovel (as shown in figure 5) in his hands. Mr Norman told other Simmons' workers he had to get inside the trailer and dig the coal out. One worker protested but Mr Norman dismissed him and stated he was not allowed to do it at the wash bay anymore. There was no risk assessment undertaken nor were the hazards discussed.

Mr Norman and two other workers manually cleaned out a coal haulage trailer between 7.10am and 7.50am. The method the three workers used to access the trailer involved Mr Norman prying open the tailgate at the rear of the trailer while the other two workers lifted and held up the tailgate. This allowed Mr Norman to prop open the tailgate with the handmade tool. Mr Norman then entered the trailer through the open tailgate and used a shovel to clean away the coal residue that had built up in the trailer. Mr Norman then exited the trailer without incident and removed the handmade tool that was used as a prop.

Mr Norman and two other workers attempted to manually clean out another coal haulage trailer using the same method between 9.00am and 9.30am. However, Mr Norman had trouble getting the prop in place while the tailgate was being held open by two co-workers. The tailgate fell and crushed Mr Norman's head between the tailgate and the rear of the trailer body causing serious head injuries.

10. Safety management

According to Bloomfield, at the time of the incident, Mr Norman was working under the Simmons work health and safety management system (WHSMS). Mr Norman and the other Simmons workers were also required to comply with certain aspects of the Bloomfield WHSMS for site rules where Simmons did not have their own systems in place. These rules were communicated to Simmons workers via the Bloomfield contractor induction.

An examination of the Simmons WHSMS identified that Simmons workers were required to work under the host business WHSMS.

There was no agreement in place between Simmons and Bloomfield to confirm which WHSMS Simmons workers would comply with.

10.1. Contractor management

Bloomfield had a contractor management system in place to guide the engagement and ongoing management of contractors.

The intent of the contractor management plan was to manage health, safety and environmental management issues and not the broader commercial relationships with contractors.

Simmons was classified as an operational contractor within the contractor management plan. Operational contractors are identified as posing the greatest risk.

All operational contractors were required to have a SWMS in place. The plan detailed that the SWMS only gives a general guide to Bloomfield of how the contractor manages or intends to manage the inherent hazards. It did not relieve the contractor of their responsibility to conduct the appropriate risk assessments prior to and during the contracted work program or activities.

10.2. Supervision

Simmons operated a secondary business. As a result, the supervision of the work and workers at the mine was primarily being undertaken and monitored remotely via phone calls.

Bloomfield had two main positions at the mine that had responsibility for supervising the Simmons workers. One was responsible during the day shift and one during the night shift.

11. Causal factors

The causal factors identified during the investigation involved a culmination of events that resulted in the incident occurring. These included:

- → ambiguity surrounding which WHSMS applied to the Simmons workers
- → a lack of an operational risk assessment for the Muscat trailer
- → a verbal communication from 'someone' at the mine that Mr Norman could not use the wash bay
- → no follow up or contact with mine management to confirm the verbal direction about the wash bay
- → a lack of procedures in place for cleaning out the trailers
- → a lack of supervision of Simmons workers by Bloomfield and Simmons
- → a lack of appropriate risk assessments for changing the method of cleaning out the trailer
- → a lack of formal risk assessment training for Simmons workers.

This Investigation Report is published for the purposes of s. 271(3)(c) of the *Work Health and Safety Act 2011* and s. 70(1) of the *Work Health and Safety (Mines and Petroleum Sites) Act 2013.*