Trade & Investment
Mine Safety

# Investigation report

## Report into the death of James Leslie Stocks, found at the bottom of a shaft on Mineral Claim 32904 at Lightning Ridge on 7 March 2013

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July 2014

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Published by NSW Department of Trade and Investment, Regional Infrastructure and Services

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Report date January 2014

Investigation Unit Thornton

www.resourcesandenergy.nsw.gov.au/safety

# Contents

# 1 Incident overview

James Leslie Stocks, 46, was found dead at the bottom of a shaft on Mineral Claim 32904 about 9am on 7 March 2013. The claim was in the Lightning Ridge Mineral Claims District. The shaft was 13.6 m deep.

Mr Stocks had allegedly left companions at the camp on the claim about 8pm the evening before and had not been seen since.

The shaft had a cement collar that was usually covered with a piece of steel mesh. It was not pinned down in any way (see Figure 1 below). The companions who were with Mr Stocks the previous evening saw that the steel mesh was not on top of the shaft, which led to the discovery of Mr Stocks' body.


**Figure** 1. The incident site on 7 March 2013. Note: the shaft cover was replaced for safety purposes. When Mr Stock's body was discovered the mesh was not covering the shaft.

# 2 Background

## 2.1 Investigation scope and background

This incident was referred to the Investigation Unit for investigation.

The investigation was conducted under the *Work Health and Safety Act 2011* (WHSA).The Investigation Unit had authority to conduct an investigation into this matter because the incident occurred on a mineral claim, which is a mining workplace regulated by the department.

The investigation focused on identifying the cause and circumstances of the incident.

### 2.1.1 The department's Investigation Unit

The Investigation Unit investigates the nature, cause and circumstances of major accidents and incidents in the NSW mining and extractives industry.

Its role is to carry out an analysis of incidents to ensure that lessons can be applied for the safety of workers at other mines.

The unit is autonomous within the department and reports directly to the Secretary of NSW Trade & Investment on all matters in relation to an investigation. It is not involved in the day-to-day inspection of mines.

### 2.1.2 Legislative authority to investigate

**Mining workplace and Mineral Claim 32904**

A mining workplace is defined by the WHSA to mean a place of work to which the *Mine Health and Safety Act 2004* (MHSA) applies. The MHSA is administered by the Minister for Resources and Energy and the department.

The MHSA applies to places of work (mines) which are set out in section 6 of the Act. This includes 'any place where the extraction of material from land for the purpose of recovering minerals or quarry product is carried out'.

Mineral means any substance that is a mineral within the meaning of the *Mining Act 1992* (MA). Under the MA a mineral means any substance prescribed by the regulations as a mineral for the purposes of the definition of mineral. Schedule 1 of the *Mining Regulation 2010* (MR) prescribes that opal is a mineral.

The mineral claim where Mr Stock was found is a mine to which the MHSA applies.

**Appointment of inspectors**

The MHSA provides for the appointment of government officials to have oversight of mines. A person who is appointed as a government official under the MHSA is deemed to be an inspector for the purposes of the WHSA. An inspector has powers and functions, including the function of investigating possible contraventions of the WHSA.

The Investigation Unit investigators are appointed as government officials under the MHSA.

## 2.2 Regulation of opal mining at Lightning Ridge

The department manages and administers opal mining at Lightning Ridge under the MA. The department also regulates the safety of opal mining at Lightning Ridge and plays a significant role in the environmental management of opal mining activities.

### 2.2.1 Establishment of the Lightning Ridge Mineral Claims District

The MA allows for the constitution of mineral claims districts and the granting of mineral claims, as well as the constitution of opal prospecting areas and granting of opal prospecting licences.

The Lightning Ridge Mineral Claims District was set up under section 173 of the MA. The Narran–Warrambool Reserve was established over the Lightning Ridge Mineral Claims District in 1993, covering approximately 5000 $km^2$ of land surrounding the Lightning Ridge opal fields. The reserve was designed to protect the heritage of the small miner by preventing the granting of large exploration licences and mining leases, effectively limiting operations to small scale mining. Only mineral claims, opal prospecting licences and mining leases for mining purposes are allowed to be granted.

Opal mining at Lightning Ridge takes place within Opal Prospecting Areas constituted by the Minister pursuant to s 220 of the MA. There are four areas within the Lightning Ridge Mineral Claims District.

### 2.2.2 Administration of mineral claims

Part 9 of the MA contains provisions relating to mineral claims. The Titles Unit within the Resources and Energy Division of the department was responsible for managing the granting of mineral claims.

Pursuant to section 175 of the MA the Minister has made an order specifying the conditions that apply to mineral claims in the Lightning Ridge Mineral Claims District. The order establishes classes of mineral claims (and their size, shape and permitted operations), restricts mineral claims to being granted in respect of opal only, specifies the maximum number of mineral claims that may be held by any one person, the period for which a mineral claim is to have effect and the nature and extend of prospecting and mining operations that may be carried out in respect of mineral claims.

Section 192(1)(d) of the MA states that a mineral claim is also subject to any conditions that the Secretary imposes when the claim is granted.

The department's website sets out the requirements to obtain a mineral claim:

- Attend the Mine Safety Awareness Course.
- Decide on the type of mineral claim.
- Choose a suitable area that is available for application.
- Mark out the area required and prepare a plan of the area.
- Serve notice on all affected landholders.
- Nominate a mine operator who has completed the course (Mine Operator's Workshop).
- Lodge an application with the Secretary.

The application must be accompanied by an application fee and if the mineral claim is granted the applicant must:

- Sign a certificate accepting the terms and conditions of the claim.
- Pay the security deposit.
- Pay the Administrative Term Levy.

The department currently requires all new claim holders to undertake the above steps.

There were 3148 mineral claims registered at Lightning Ridge at the time of writing.

### 2.2.3 Environmental management

Part 11 of the MA contains provisions regarding protection of the environment. Rehabilitation and environmental performance conditions are attached to all authorities issued under the MA. The Environmental Sustainability Unit within the Resources and Energy Division of the department is responsible for the environmental management of opal mining activities.

According to the department's website the responsibilities of the unit are as follows:

- Working with and facilitating communication between government, the mining and petroleum industries and the community
- Undertaking regulatory activities including:
    - reviewing environmental impact assessments for proposed exploration, mining and petroleum activities

- promoting compliance through site inspections, audits (both mandatory and voluntary) and regular reporting
- investigating complaints and environmental incidents
- taking appropriate enforcement action for non-compliances
- coordinating regulatory activities with other relevant government departments and agencies.

- Reviewing environmental performance prior to the granting of a title
- Reviewing and approving rehabilitation standards and plans proposed by mining and petroleum proponents
- Setting and reviewing security deposits which are held to ensure effective rehabilitation and the fulfilment of other obligations under the authorisation/title
- Regulating onsite rehabilitation, supervising mine closures and determining when rehabilitation has achieved the required standards and the agreed post-mining land use.

#### 2.2.4 Safety regulation

The MHSA, administered by the department, assists in securing the objects of the WHSA in relation to mines, including the object of securing and promoting the health, safety and welfare of people at work at mines or related places.

The operation of opal mining is regulated under the MHSA and the *Mine Health and Safety Regulation 2007* (MHSR). The MHSA sets out the broad framework of how mining activities are to be undertaken in NSW. The MHSA requires all mine holders to nominate an operator of their mine and requires the operator of the mine to prepare a mine safety management plan for the mine.

Section 30(2) of the MHSA requires a mine safety management plan to provide:

(a) the basis for the identification of hazards, and of the assessment of risks arising from those hazards, by the operator of the mine, and

(b) for the development of controls for those risks, and

(c) for the reliable implementation of those controls.

NSW Mine Safety has a team of inspectors throughout the state who carry out assessments, investigations and verify appropriate safety systems, processes and standards.

Mine Safety has four Mine Safety Officers stationed at Lightning Ridge. At the time of the incident there were three officers because the fourth position was vacant. These officers are responsible for a range of regulatory activities including industry engagement, training and monitoring industry compliance.

# 3 Description of the incident

## 3.1 Events before the discovery of the body

On the afternoon of 6 March, Mr Stocks and three friends were socialising and at some point went to the camp situated on the mineral claim. There is no clear timeframe for when they arrived at the mineral claim.

All three witnesses report that they and Mr Stocks had consumed alcohol during the afternoon/evening. Mr Stocks' blood sample showed that he had a blood alcohol reading of 0.209 and cannabis was detected.

Mr Stocks left the camp between 8pm and 9pm. Witnesses reported that it was dark when Mr Stocks left and he took a schooner of wine with him. Figure 2 shows the shaft in relation to Mr Stocks' regular walking path home.


**Figure 2**. The mineral claim on 9 March 2013.

The three witnesses slept at the mineral claim camp. Their accounts of what happened on the morning of 7 March 2013 vary considerably. Nevertheless, witness accounts suggest the following events occurred.

- The witnesses were unable to find Mr Stocks the following morning.
- Witnesses noticed the shaft was not covered.
- Witnesses used a mirror and sunlight to look down the shaft.
- Witnesses observed Mr Stocks at the bottom of the shaft.
- A witness rang triple 0.
- The call to emergency services was recorded 7 March 2013 at 9.27 am.

## 3.2 Emergency response and recovery of body

NSW Police, NSW Ambulance service and State Emergency Service (SES) attended the site at 9.40am.

A SES volunteer was the first person to be lowered into the shaft. He called out to Mr Stocks and squeezed his arm to see if he could get a response. There was no response and he formed the belief that Mr Stocks was deceased. He then returned to the surface.

A paramedic was lowered down the shaft, assessed Mr Stocks and confirmed that Mr Stocks was deceased. The SES then recovered Mr Stocks' body from the shaft.

### 3.3 Cause of death

The autopsy report for the Coroner lists the direct cause of death as chest injuries and the antecedent cause as ‘fall from height’.

## 4 Mineral Claim 32904

### 4.1The mine holder and mine operator

Under the MHSA the mine holder in relation to land subject to a mining title granted under the MA is the person who holds the title.

The mine holder was granted the mineral claim on 11 June 2004.

The mine holder has a duty to nominate the operator of a mine. The mine holder nominated a mine operator of the mineral claim on 26 June 2009.

The following factual circumstances are noted in regard to the mine holder:

- Attended the Mine Safety Awareness Course (a requirement to obtain a mineral claim) on 1 and 2 July 2003.
- Became the claim holder because her father asked her to put the claim in her name.
- Has another mineral claim registered in her name, for which her father is also the nominated operator.
- Has no business arrangement with her father in regard to mining of opals.
- Has never received any benefit from the mining of opals.
- Has never mined for opals.
- Does not reside in Lightning Ridge and has not visited the mineral claim since 1994, nine years before she became the claim holder.
- Did not receive any communications from the mine operator about mining activities on the mineral claim.
- Only became aware of the shaft when she was notified by the mine operator of the incident.

The following factual circumstances are noted in regard to the mine operator:

- Completed the Mine Operators Workshop on 3 September 2004 and attended the Mine Safety Awareness Course on 29 and 30 November 2004.
- Has lived in Lightning Ridge for about 40 years.
- Is a tradesman but has been mining opal intermittently since moving to Lightning Ridge.
- At the time of the incident he had two mineral claims registered in his name.
- Asked the mine holder to register the mineral claim in her name because one person cannot have more than two registered claims.
- At the time of the incident he was the nominated mine operator for his registered claims in addition to the two mineral claims held by the mine holder.
- Paid all costs and fees associated with the mineral claim.

### 4.1.1 Mining experience of the mine operator

The mine operator became an opal miner's offsider in the 1970s and returned to his trade in 1977. He then became a hobby gouger as opportunities arose.

He estimated that he has had between 10 and 20 mine holes put down on various claims since he has been mining in Lightning Ridge. According to the mine operator, the last time he had a hole drilled (prior to the shaft) was about five years ago.

## 4.2 Location and description of Mineral Claim 32904

The mineral claim is about 1.5 km from Lightning Ridge. It is in the Canfells Opal Field within Opal Prospecting Area 1 of the Lightning Ridge Mineral Claims District. Figure 3 shows the general location of the incident scene relative to Lightning Ridge.

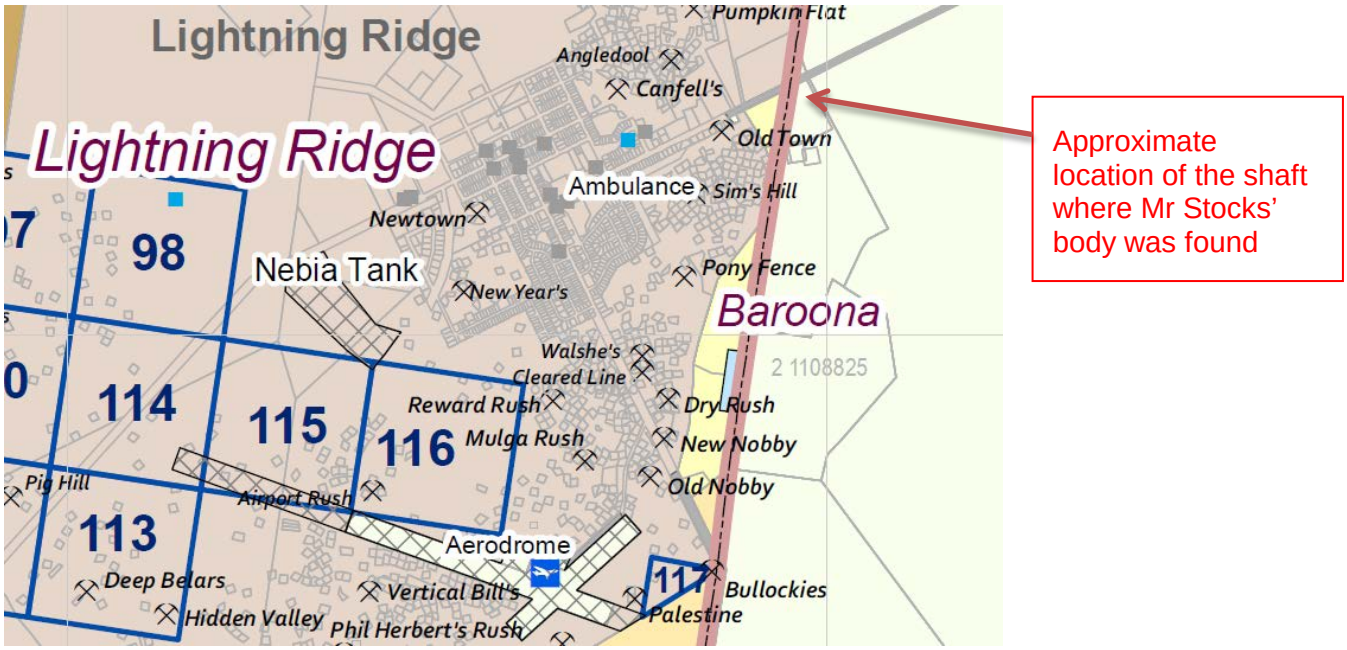


**Figure 3** Lightning Ridge and approximate location of Canfell's field and site of Mineral Claim 32904.

Figure 4 is a survey of the mineral claim which shows the dimensions of the claim as well as the location on the claim of the shaft, two older shafts, the camp, a caravan, a toilet, a steel container and iron formwork.

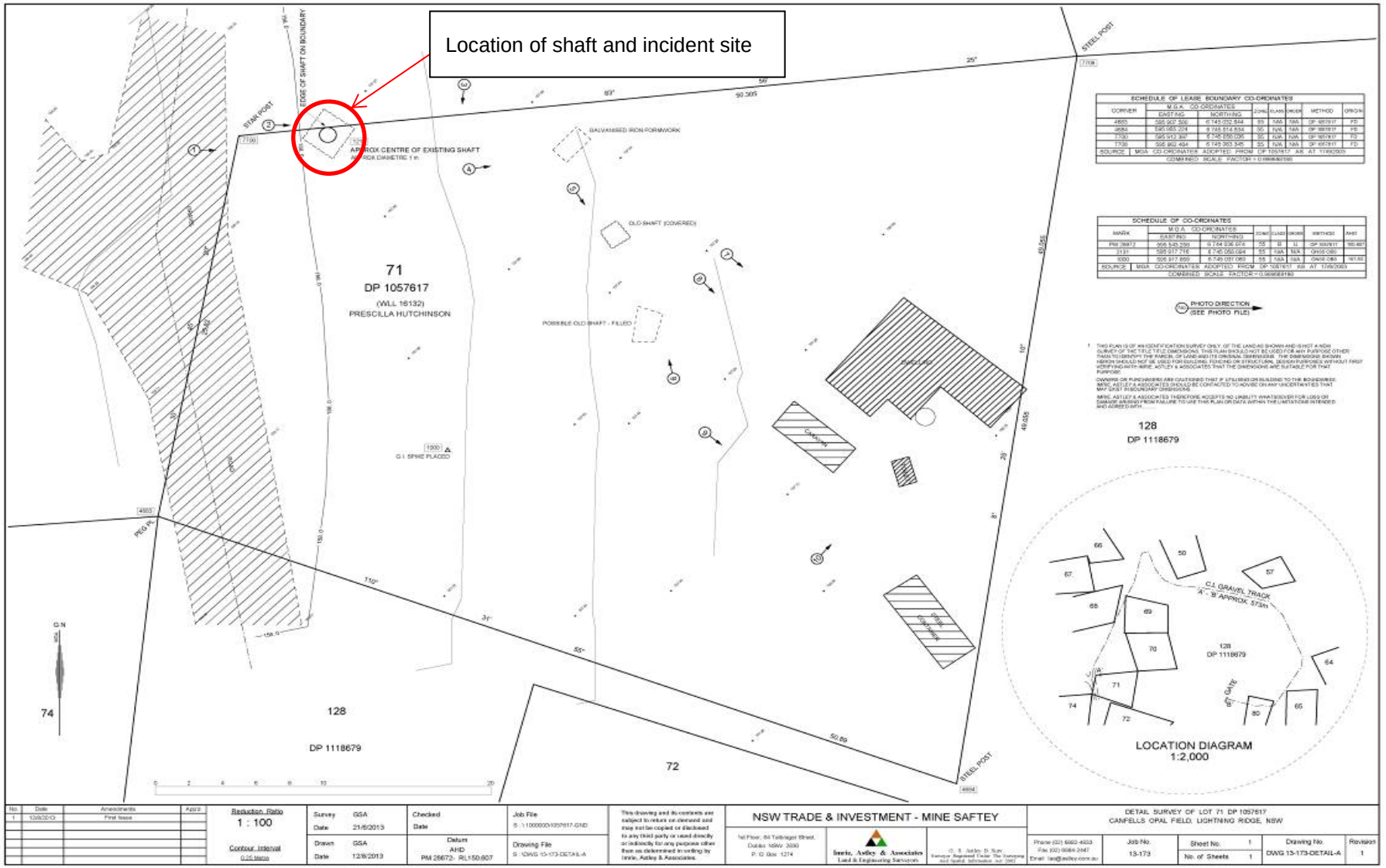


**Figure 4**. Survey of Mineral Claim 32904.

Figure 5 and Figure 6 show the mineral claim on 9 March 2013. The backhoe marked in Figure 5 and the truck marked in Figure 6 were on the mineral claim at the time of the incident.


**Figure 5**. Mineral claim on 9 March 2013.

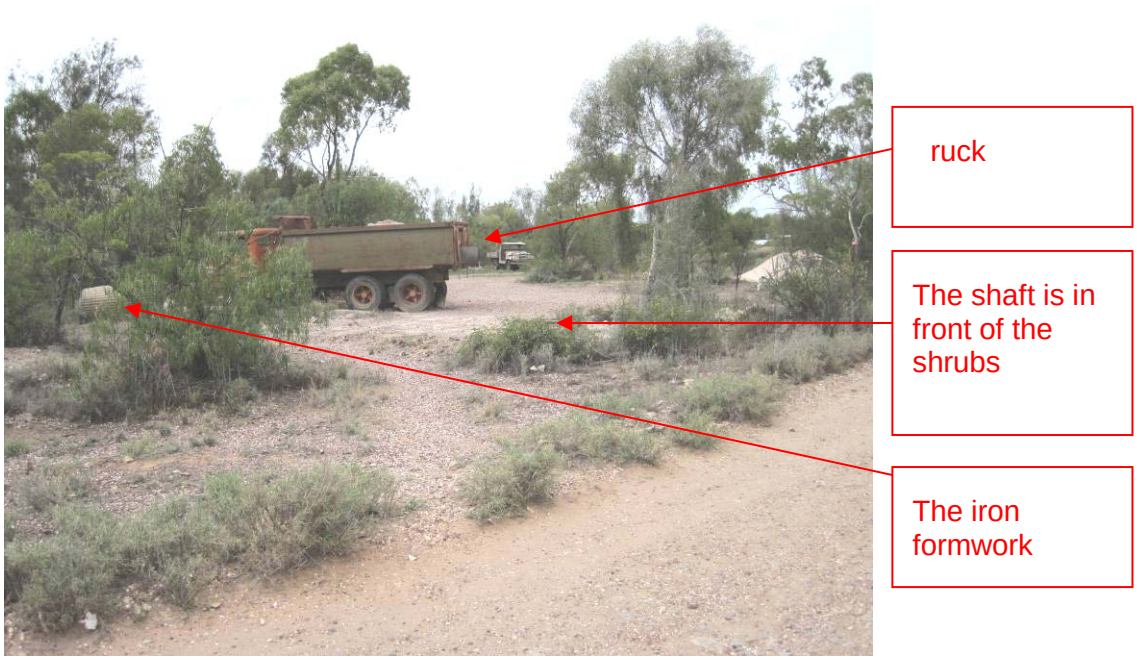


**Figure 6**. Mineral claim on 9 March 2013.

### 4.2.1 Type of mineral claim

The mineral claim is a Class A ordinary claim. Mining for opals is allowed on the claim in accordance with specified claim conditions.

There is also a Western Lands Lease over the mineral claim (WLL 16132) with a term from 23 September 2009 to 22 September 2029. This allows for occupancy of the Mineral Claim and for dwellings to be erected upon it.

## 4.3 Mining on the mineral claim

### 4.3.1 History of mining on the mineral claim

According to the mine operator no opal has been found on the mineral claim by him or anyone else since it has been held by the mine holder.

### 4.3.2 The shaft

About six months before the incident the mine operator had a contractor drill the shaft in the north-western corner of the mineral claim. This was a verbal contract. According to the mine operator he had a prospecting shaft safety plan in regard to the drilling of the shaft. This plan was not documented nor were there other documented safety management plans, risk assessments or emergency plans in relation to the mineral claim.

The mine operator had the shaft drilled because he intended to dig a drive between the shaft and an existing shaft on the claim.

The diameter of the shaft was 1.0 metre and it was 13.6 metres deep. The mine operator made a concrete collar around the top of the shaft which extends around 0.01 metres above the ground. The mine operator removed the inner moulding of the collar four to six weeks before the incident, and this was the last time the mine operator worked on the mineral claim before the incident.

The mine operator reported that immediately after the shaft was drilled, he placed a cover over the shaft and pinned it down on the diagonal corners with two pins. The cover consisted of a piece of steel mesh 1.62 metres by 1.52 metres, with spacing between the transverse and the longitudinal wires of 0.2 metres by 0.2 metres. The gauge of the mesh is 0.007 metres and the diameter of the supporting pipe is 0.06 metres (see Figure 7). After the concrete collar was constructed the mesh was placed over the shaft but not pinned down at any time.

According to the mine operator, whenever he visited the claim he always checked to ensure the cover was in place. The last occasion he was at the mineral claim before the incident was 3 March 2013. He said the shaft was covered with the steel mesh on that occasion. Figure 7 shows how the mesh would normally be placed over the shaft.

**Figure 7** The shaft showing the steel mesh in what was alleged to be its usual position on 7 March 2013. Note that the mesh was placed over the shaft after the incident.

# 5 Managing the risk of falls

## 5.1Legislative requirements

The WHSA and the *Work Health and Safety Regulation 2011 (*WHSR) require the risks of falls to be managed. Clause 79 of the WHSR sets out specific requirements for minimising the risk of fall including the requirement to have fall prevention devices. These include:

(a) a secure fence

(b) edge protection

(c) working platforms

(d) covers

The MHSA assists in securing compliance with the objects of the WHSA in the mining industry. In this regard, the design, construction and use of mining shafts in NSW are regulated under the MHSA. These activities have been designated as prescribed hazards due to their technical and high risk nature.

The MHSR requires the operator of the mine to address shaft risks including the prevention of falls of persons, plant, substances and objects. The legislation is not prescriptive in respect of how the risks are addressed but rather directs the operator or duty holder to properly assess the risks associated with the activities.

However, clause 44 of the MHSR requires the operator to document how risks are assessed and sets out the considerations that must be included in that documentation including:

(1) The operator of a mine must ensure that the WHS risk assessment relating to each prescribed hazard at the mine is documented.

(2) That documentation must include a recording of the basis on which the level of risk from each prescribed hazard was determined.

(3) The operator of a mine must ensure that the level of detail to be documented and recorded in an OH&S risk assessment relating to a prescribed hazard at the mine is commensurate with the degree of risk identified in relation to the relevant hazard…

## 5.2 Codes of practice

The MHSA allows for the Minister to prepare and adopt codes of practice that give practical guidance to persons who have duties under the MHSA and the WHSA.

The code of practice ‘Managing the Risk of Falls at Workplaces’ has been adopted under the above legislation. The code sets out a range of measures to protect people from falls at workplaces. It specifies that any opening should be covered to prevent the risk of a fall. It states:

> “holes, penetrations and openings through which a person could fall should be made safe immediately after being formed. If a cover is used as a control measure, it must be made of a material that is strong enough to prevent persons or objects falling through and must be securely fixed to prevent any dislodgement or accidental removal.”

Where a cover consisting of mesh is used as a control measure (fall prevention device), the code requires such a measure to comply with:

> “AS/NZS 4389 Safety Mesh, which specifies the minimum requirements for the design, construction, testing and installation of safety mesh for use in domestic, commercial and industrial building applications.
>
> The mesh should be formed from 2 mm diameter wire of not less than 450 MPa tensile strength, welded into a mesh with the longitudinal wires not more than 150 mm apart and the cross wires not more than 300 mm apart...”

The mesh used to make the cover of the shaft on Mineral Claim 32904 was not to the standard as the spacing of the grid was 200 mm by 200 mm nor was the tensile strength of the wires ascertained before it was used as a cover.

## 5.3 Shaft covering guidelines for mineral claims

In 2001, the then Department of Mineral Resources developed and published a document regarding the requirements for *Minimum Standards for Securing Shafts and Auger Holes on Mineral Claims*. This document provides guidance to the industry about the minimum standards for securing shafts on mineral claims. These guidelines remain current and form part of industry education programs.

The guideline depicts two methods for securing shafts. Method A depicts fencing in the form of four steel posts with four strands of barbed wire. The steel posts are to be firmly driven into the ground and the wires should be spaced in accordance with the guideline.

Method B depicts steel reinforcing mesh with a supporting steel pipe to cover the shaft with the mesh fixed to the ground at two points enabling the cover to hinge at these points to allow access to the shaft.

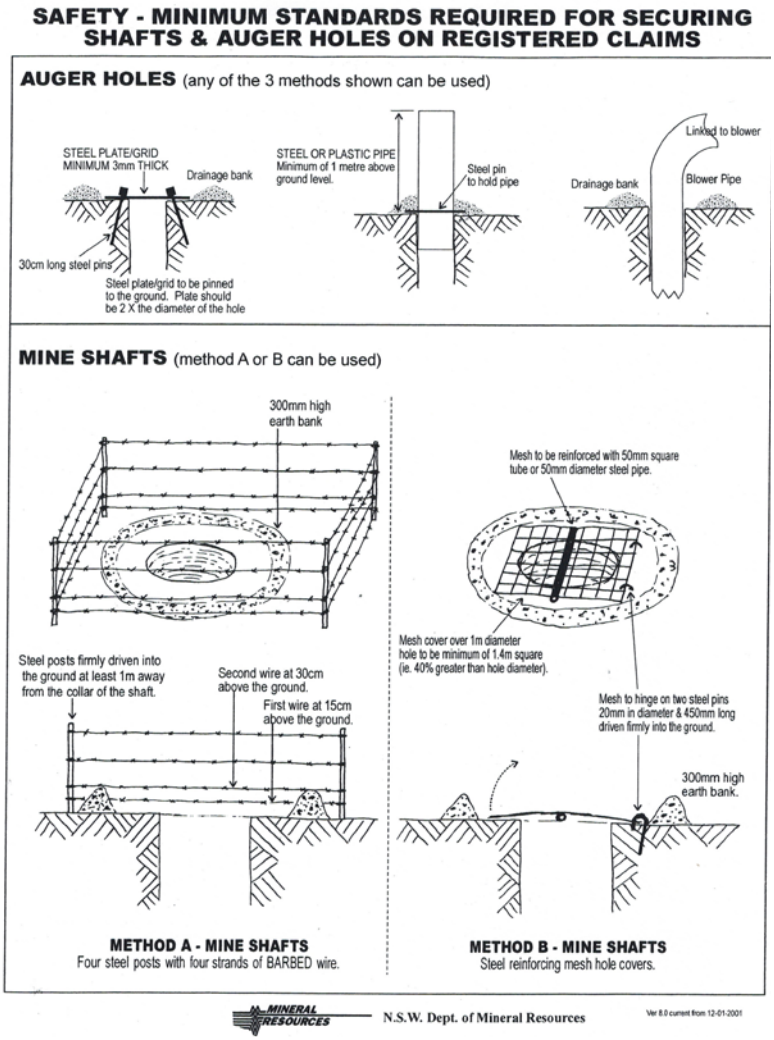


**Figure 8** Safety Standards for Securing Shafts and Auger Holes.

In September 2010, the department published *NSW Opal Mining Safety Guidelines*. This document sets out a range of guidance material for the opal mining industry including shaft safety and fall prevention information. This document suggests the following protection measures for shaft covering and prevention of falls:

- Install a lockable gate arrangement over the top of the shaft that can be locked when you are not working the mine.
- Provide a fenced enclosure around the collar area which is kept clear of tools, equipment etc.
- Install a sign at the collar indicating that you are working below."

This publication is provided to all mineral claim holders at the Mine Safety Awareness Course delivered by the department (this publication is not available to the public unless it is purchased from the department). Mine Safety Awareness Courses are delivered on a regular basis as new claim holders apply to be registered. In 2013, the 7000th participant completed the course.

The *NSW Opal Mining Safety Guidelines* provides guidance that is of a higher standard for securing shafts than the Minimum Standards for Securing Shafts and Auger Holes on Mineral Claims, which at the time of the incident was considered the minimum standard. At the time of the incident this minimum standard was under review, with discussions taking place with the Lightning Ridge Miners Association and other stakeholders.

It should be noted that there are signs displayed throughout the opal fields, designed, installed and paid for by the department's Mine Safety Operations branch (see figure 9 below).


**Figure 9.** Department sign on the Canfell's opal field, 13 March 2013.

## 5.4 Other opal mining jurisdictions

There are very few opal mining regions in the world. Australia is the world's leading producer of opal, with NSW and South Australia having the highest production levels of opal. South Australia's regulatory framework has been examined.

South Australia has a *Safety in Opal Mining – Opal Miners Guide* published by the Mining and Quarrying Occupational Health and Safety Committee (a tripartite body established under the *Occupational Health, Safety and Welfare Act 1986* (SA). This document provides guidance about controlling and managing hazards in the South Australian opal mining industry. It identifies falls into shafts as a hazard however, it does not provide information about the measures required for securing shafts and preventing falls.

# 6 Cause and circumstances of incident

## 6.1 How Mr Stocks' body came to be in the shaft

The investigation could not determine how Mr Stocks came to be at the bottom of the shaft. However the injuries sustained by Mr Stocks were consistent with a fall from height.

There was a period of 12 to 13 hours before the discovery of Mr Stocks' body that cannot be accounted for.

There were a number of questions surrounding the circumstances of the incident that had not been eliminated at the time of writing.

Did Mr Stocks simply fall down the uncovered shaft? If so how did the shaft come to be uncovered? Was the shaft covered at the time Mr Stocks left, or was it uncovered before that time?

Witnesses reported that the shaft was always covered and it was because the shaft was uncovered that witnesses came to look down the shaft when searching for Mr Stocks.

In which case how was the cover removed and by whom? Was the cover removed inadvertently?

The cover weighed 14.6 kg and any attempt to kick it off the top of the shaft would appear to be improbable. Mr Stocks was not wearing shoes, the edges of the shaft cover were sharp and irregular and the autopsy did not disclose any injuries to Mr Stocks' feet.

Could it have been knocked off by a passing vehicle? While the shaft is close to a main track passing the mineral claim it is separated from the track by low scrub. It would not be possible for a vehicle to swerve of the track and hit the cover without significant damage to the surrounding scrub. There were no tyre marks, skid marks or any damage that could be discerned at the site of the incident.

Could one of the vehicles that were parked on the mineral claim have knocked the cover off? This is possible but once again there were no signs that a vehicle had been involved at the incident scene and none of the people involved have come forward with such a suggestion.

If the cover was removed deliberately then who removed it and why? Did Mr Stocks remove the cover?

# 7 Safety observations

An analysis of the information gathered by the Investigation Unit was conducted to determine the mining-related learnings arising from this incident. The following safety learnings were identified:

### 7.1.1 Prepare and maintain a mine safety management plan.

As set out at 4.3 of this report, the MHSA requires that all mining operations must have a mine safety management plan. In addition to this the installation use and maintenance of shafts is a prescribed hazard under the MHSR. Consequently mine operators are required to maintain a mine safety management plan that includes details of how shaft related risks are to be managed safely. It should also include documented risk assessments of all identified hazards associated with shafts and the basis upon which those risks were assessed.

### 7.1.2 Cover and secure shafts in accordance with the department's guidelines.

Shaft covers that are not pinned down can be easily moved. All shaft covers should comply with the department's guidelines and be adequately secured. The *NSW Opal Mining Safety Guidelines* also recommend a higher standard for shaft security that includes extending the height of the collar, erecting fences and warning signs and installing a lockable cover.

### 7.1.3 Fence shafts in accordance with the department's guidelines.

In the absence of placing a cover over the hole and pinning it down the *Minimum Standards for Securing Shafts and Auger Holes on Mineral Claims* sets out that a shaft must be fenced. All shaft fencing should comply with the department's guidelines. Regular maintenance of shaft infrastructure is paramount to ensure it does not deteriorate.

### 7.1.4 Erect signs to warn the public

While the *Minimum Standards for Securing Shafts and Auger Holes on Mineral Claims* does not require signage, such signage is recommended in the *NSW Opal Mining Safety Guidelines*. Signposting is a common method of warning people of a danger or hazard.

### 7.1.5 Adopt a systematic approach to work health and safety

Safety management systems are built around the concept that the greater the risk and the harm that might result from the risk the greater the effort must be, to either remove the risk entirely or put in place sufficient barriers to ensure that the risk is properly managed. This is a fundamental concept that underpins the work health and safety legislation in NSW. The lack of a systematic approach to assessing the risks associated with mining operations and failure to build in sufficient layers of protection to address those risks will heighten the likelihood that harm might occur.

# 8 History of incidents at Lightning Ridge

With the exception of Mr Stocks, there have been no other deaths involving falls down shafts in Lighting Ridge since 1991, when a two-year-old child died after falling down an auger hole. Since then, there have been five non-fatal incidents involving people falling into shafts, all of which had the potential to be fatalities. Two involved children. In 2005 an eight-year-old boy narrowly avoided falling into a shaft that appeared to have been backfilled over a piece of tin that gave way when the boy walked over it and in 2007 a boy slipped into an unguarded 6 m auger hole up to his armpits before being able to stop his fall by grabbing at the sides of the hole and climbing out. The last incident recorded by the department, before Mr Stocks' death, was in 2010 when a woman fell down a 13 metre shaft on a cancelled mineral claim and was rescued 72 hours later. She sustained numerous fractures.

# 9 Conclusion

This incident highlights the importance of an effective risk management program in relation to mining operations on mineral claims. Mine holders and mine operators of mineral claims should ensure:

- All shafts are appropriately fenced, covered and adequately secured.
- All shaft infrastructure is adequately maintained.
- Appropriate signage is erected in the vicinity of all shafts to warn of their presence.

Sections 27 to 34 of the *Mine Health and Safety Act 2004* provide that these types of risk controls should be part of the mine safety management plan and that the risk management strategies in use are reviewed regularly. Reviews should ensure control measures and strategies are effective and comply with the standards provided by legislation and guidelines issued by the department.

Lightning Ridge safety information can be found at:

www.resourcesandenergy.nsw.gov.au/miners-and-explorers/applications-and-approvals/lightning-ridge

www.resourcesandenergy.nsw.gov.au/miners-and-explorers/applications-and-approvals/lightning-ridge/about

www.resourcesandenergy.nsw.gov.au/miners-and-explorers/safety-and-health/events