Queensland Mines and Quarries

Safety Performance and Health Report

1 July 2014–30 June 2015

Queensland Government

Photography
The Department of Natural Resources and Mines wishes to thank the following individuals and companies who have assisted with the provision of images for this publication:

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Disclaimer
The data in this report is derived from the Department of Natural Resources and Mines (DNRM) Queensland mining industry Lost Time Accident database, in addition to information, including survey responses supplied by mining and quarrying operators throughout Queensland.

Some data has been summarised or consolidated in order to present a standardised format in this report. Although DNRM makes every effort to verify supplied data, it accepts no responsibility for data that was incorrect when supplied. The data in this report may not be fully representative of the industry or any component of it.

Please note: *The figures reported in this document are collected from mine sites on an ongoing basis. The figures are not finalised until the following year. For this reason there may be variations in the figures reported for the previous period of 2013–14.*

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Abbreviations

CMWHS	coal mine workers' health scheme
DI	disabling injury
DNRM	Department of Natural Resources and Mines
HPI	high potential incident
HSU	Health Surveillance Unit
kg	kilogram
km	kilometre
LTI	lost time injury/disease
LTIFR	lost time injury frequency rate
m	metre
mm	millimetre
MTI	medical treatment injury
NMA	nominated medical advisor
PPI	positive performance indicators
QGSO	Queensland Government Statistician's Office
t	tonne
TARP	trigger action response plan
TRI	total recordable injury
TRIFR	total recordable injury frequency rate

Definitions*

Breakdown agency	The object, substance or circumstance that was principally involved in, or most closely associated with the injury.
Coal mine	Mine subject to the *Coal Mining Safety and Health Act 1999* and associated regulations.
Days on alternative duties	The number of days a worker is unable to perform his/her regular job and has been assigned other temporary or modified duties. Alternative duties include a changed work environment, roster or shift pattern.
Days lost	All rostered shifts that a worker is unable to work because of injury, not including the day of the injury. This also includes days lost because of recurrences of injuries from previous periods and days on alternative duties after returning to work. A fatal injury is treated as 220 days lost (as per Australian Standard AS1885.1–1990, Clause 6.17).
Disabling injury	A work-related injury or disease resulting in a worker being unable to fully perform his/her regular job. Either light or alternative duties are performed.
Drawpoint	An underground opening at the bottom of a stope through which broken ore from within the stope is extracted using front-end loaders.
Duration rate	The average time (days) lost and the time (days) on alternative duties for each LTI or DI. In this report, time lost includes all time lost for an incident to date.
High potential incident	An event, or series of events, that causes or has the potential to cause a significant adverse effect on the safety or health of a person.
Lost time injury/ disease	An incident resulting in a fatality, permanent disability or time lost from work of one shift or more. The shift on which the incident occurred is not counted as a shift lost.
Lost time injury frequency rate	The number of lost time injuries/diseases per million hours worked.
Lost time and disabling injury frequency rate	The number of lost time injuries/diseases and disabling injuries per million hours worked.
Mechanism of injury	The action, exposure or event that is the direct cause of the most serious injury.
Medical treatment injuries	Those incidents, which were not lost time injuries or disabling injuries, for which first aid and/or medical treatment was required by a doctor, nurse or person qualified to give first aid.
Metalliferous mine	Mine subject to the *Mining and Quarrying Safety and Health Act 1999* and associated regulation.
Nature of injury	The most serious injury or disease sustained or suffered by the worker.
Occurrence class of injury	The activity that was principally involved in, or most closely associated with the injury.
Quarry	Excavation of hard rock for use in construction (operations covered by the *Mining and Quarrying Safety and Health Act 1999* and associated regulation).
Rib	The side of pillar or the wall of an entry.
Rill	In an underground metalliferous mine, is the surface of the broken ore mud pile that is created in the drawpoint of a stope during the extraction process.
Severity rate	The time (days) lost and time (days) on alternative duties per million hours worked.
Sub-level	An intermediate level between main levels in an underground mine.
Total recordable injury	Includes the number of fatalities, lost time injuries/diseases, medical treatment injuries and disabling injuries.
Total recordable injury frequency rate	The number of total recordable injuries/diseases per million hours worked.

* The definitions in the report for bodily location, breakdown agency, lost time injury/disease, mechanism of injury, nature of injury, incidence rate and frequency rate generally conform to the workplace injury and disease recording Australian Standard (AS 1885.1–1990). The Standard's 'average lost time rate' (number of days lost per lost time injury) is called duration rate. The Standard's 'no lost time injuries/diseases' (those occurrences that were not lost time injuries and for which first aid or medical treatment was administered) are called medical treatment injuries or disabling injuries (the injured person cannot return to their normal job and is put on alternative duties). When calculating duration rate (number of days per lost time injury) and severity rate (days lost per million hours worked) for a lost time injury, the days lost include the days away from work and the days on alternative duties. The Australian Standard is not clear on whether days lost should include days on alternative duties. It is common practice in other Australian jurisdictions to only include days away from work in duration and severity calculations. However, as the number of days required to be spent on alternative duties is a reflection of the severity of the injury, it is considered that including these days presents a more accurate picture of the industry with respect to the severity of an injury or illness.

Message from the Chief Mine Safety and Health Officer

I am pleased to present the *Queensland Mines and Quarries Safety Performance and Health Report* for the year 1 July 2014 to 30 June 2015.

The Mine Safety and Health group in the Department of Natural Resources and Mines administers mining safety and health laws in Queensland. These laws provide the framework for protecting the safety and health of workers at mines and quarries. In addition to enforcing the provisions of the mine safety and health legislation, the Mine Safety and Health group advises, mentors and assists the mining industry to build capacity in managing safety and health risks.

This report is an important element in the drive for continuous improvement in the safety and health performance of the mining industry. The performance indicators reported provide a sound basis for targeting future safety and health interventions to areas of priority and a benchmark to drive further improvement in safety and health performance year on year.

The past year has been a challenging one for the mining industry. These difficulties are reflected in the safety and health statistics. The number of lost time injuries (LTI) dropped from 361 in 2013–14 to 296 in 2014–15. The corresponding lost time injury frequency rate (LTIFR) fell from 3.2 to 3.0 injuries per million hours over the same period. This decrease in LTIFR was reflected in the coal and quarrying sectors but the rates for surface and underground metalliferous mines increased from 2.4 to 3.0 and 1.9 to 2.4, respectively.

However, in considering safety and health performance, the combined LTI and disabling injuries (DI) parameter provides a better measure of performance rather than considering LTIs alone. The number of the combined LTIs and DIs increased from 946 in 2013–14 to 980 in 2014–15. The increase was primarily due to an increase in the number of DIs from 585 in 2013–14 to 684 in 2014–15. The combined lost time and disabling injury frequency rate also increased from 8.5 to 10.0 injuries per million hours over the same period. Both the severity rate and duration rate for the combined lost time and disabling injuries fell in 2014–15.

The number of permanent incapacities in the industry fell from 38 to 25. Although there was an overall decrease, the number of permanent incapacities increased in both surface and underground metalliferous mines.

This year has been marred by a number of incidents at both coal and metalliferous mines that have resulted in serious injury and loss of life. Ian Downes, Jason Braid, Steven Cave and Laurie Donovan died as the result of mining accidents during 2014–15. Joshua Jones was seriously injured in the accident that claimed Steven Cave's life. I am saddened by these tragic events, and my sympathy and condolences go out to the injured, families and friends.

When considered alongside the deaths, in 2013–14, of two Queensland mine workers, Paul McGuire and Brett Kelly and 14 other Australian mine workers across the country—this increase in fatal accidents is very concerning. The six fatalities in 2013–14 and 2014–15 at Queensland mines occurred over a period of 11 months from May 2014 to March 2015. This is the worst fatality record since 1997.

The Mines Inspectorate is continuing its investigations into five of the accidents and a prosecution has commenced in relation to the sixth.

Even though the results of the ongoing investigations are not available at this time, I can say, as I have on numerous occasions, improved training, competency and support of line supervisors are key areas requiring improvement across the mining industry. Poor knowledge and competency are precursors to major mining accidents.

Contractor workers continue to be over-represented in fatal mining accidents and this last year has been no different. Three of the four Queensland fatalities were contractors. Mines must manage the safety and health of contractors no differently to their own employees. In Queensland mining safety and health legislation, mine management owes an equal duty of care to both. Safety and health obligations for contractors cannot be abrogated by mine operators, site senior executives or mine management.

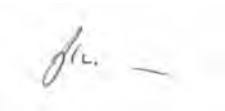
During 2015, Queensland recorded its first cases of pneumoconiosis in nearly three decades and the department is currently assessing what improvements may be required to the coal health assessment process.

We have approached Monash University Centre for Occupational and Environmental Health to assist with a review of existing medical assessment methodologies, to ensure that early diagnosis for respirable lung diseases such as pneumoconiosis occurs at the screening level.

In addition, the Inspectorate will continue to implement a program to ensure all mines have effective dust management plans in place.

I would like to take this opportunity to thank Andrew Clough who resigned as Chief Inspector of Coal Mines to take up a position in the New South Wales mining industry. We are very sorry to see Andrew go, but wish him all the very best in his move back to mining operations.

In closing, it is important to recognise factors that can lead to compromises in worker safety and health in an industry that is experiencing contraction and significant organisational change—factors such as increased psychosocial stress and loss of expertise—which can weaken safety and health systems. The industry needs to actively support a positive safety culture and reaffirm its commitment to safety and health leadership to ensure all workers return home safe and well after working a shift at a Queensland mine or quarry.



Paul Harrison
Chief Mine Safety and Health Officer
Acting Commissioner for Mine Safety and Health

Summary from the Chief Inspectors of Mines

Once again we welcome this opportunity to comment on how the industry has performed over the past 12 months, what we see as successes and failures, and what we are doing to raise industry's safety and health performance in the year ahead.

As mentioned earlier in this report, the year in review was marred by the tragic loss of four mine workers. We extend our heartfelt sympathies to the family and friends of those who lost their lives:

- Ian Downes was fatally injured when he was struck by a piece of coal, which fell from the sidewall in an underground coal mine in December 2014.
- Jason Braid died following injuries sustained when he was struck by a rock in the drawpoint of an underground metalliferous mine in February 2015.
- Steve Cave was killed and another worker seriously injured at a surface coal mine when the locking ring on the tyre they were fitting to a truck detached while the tyre was being inflated in February 2015.
- Laurie Donovan was killed when a four wheel drive bus that he was a passenger in rolled at a surface coal mine in March 2015.

These fatal incidents come after the deaths of two Queensland mine workers in the last two months of 2013–14 (a total of six fatalities in an 11 month period).

We would like to take this opportunity to mention the work being carried out by A Miner's Legacy, a not-for-profit foundation established to provide support, advice and assistance to families and friends of mineworkers involved in fatal mine accidents. The support that organisations like this provide is invaluable to people affected by mining tragedies and is sadly still needed while fatalities continue to occur in this industry.

While there has been improvement in lost time injury data, other lagging indicators reveal that performance in other areas has dropped for 2014–15.

This report goes on to cover these results in some detail, but the data broadly shows that the number of lost time injuries (LTI) has decreased, continuing a 4 year downward trend. The number of medical treatment injuries (MTI) also decreased compared to 2013–14 in all sectors except coal mining. In contrast, the number of DI has increased in all sectors except metalliferous mining.

This last year has seen a reduction in the number of mining employees and total hours worked in all sectors. The LTIFR (all sectors combined) continued its downward trend, as mentioned previously. But when considering the impact of the increase in the number of DI, the DI frequency rate and the combined LTI and DI frequency rate (all sectors combined) have risen in 2014–15, as did the total recordable injury frequency rate (TRIFR).

With regard to high potential incidents (HPIs), the number reported has continued its downward trend from the peak in 2011–12, in line with decreasing employment numbers. However, there continues to be incidents that cause significant concern.

In the coal mining sector, the mines inspectorate has observed the following concerning themes in the HPIs reported throughout the year:

- The management of methane in underground workings continues to be a major issue, for example, mining machines cutting into gas drainage holes which were not identified in the permit to mine.
- An increasing number of wall failures in open cut mines. Some of these have resulted in the burial of equipment and required the emergency evacuation of personnel.
- The prevalence of blasting incidents involving near misses with fly rock, fume events and misfires.

The following types of HPIs featured prominently in the metalliferous mining and quarrying sectors during 2014–15:

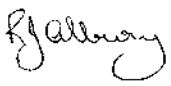
- Rockfalls in underground mines have occurred in old/existing areas, at development faces and brows of stopes. This highlights the need to ensure that there is adequate initial support and ongoing inspection and monitoring of support particularly in older parts of mines. In relation to rock falls from faces and brows of stopes, mines should be looking at methods to prevent rock falls from occurring rather than relying primarily on personnel barring down or doing spot checks.
- Winder accidents were over-represented. This is concerning as winders are generally well engineered and have robust systems, processes and procedures to control and manage them. These types of incidents are significant because a failure of a winding system can have catastrophic consequences. Such failures could be an indication that standards are dropping and/or maintenance of equipment is inadequate.

Any of these types of HPI could easily have resulted in more fatalities. The diligent application of critical controls to manage principal hazards needs to be an industry focus.

Most concerning of all safety and health performance indicators is the number of fatalities and the fatal injury frequency rate, which rose from 0.02 to 0.04. The challenge is how to achieve a fatality free industry and drive the lagging indicator statistics down further. It is critical that the mining industry share and learn lessons from the causes of fatal accidents and implement appropriate controls that will reduce the risk of these incidents occurring again.

In light of the over-representation of contractors in fatalities, as mentioned earlier in this report, any lessons learned and implemented controls must be extended to contractors. An effective contractor safety and health management system is critical in improving performance in this area. Mines Inspectors will be continuing a series of audits and inspections of contractor management systems during 2015–16.

Our thanks go to those who have assisted with and contributed to this report. We hope industry will use it to identify safety and health priorities for 2015–16 and beyond. We also encourage industry to continue to work with the Mines Inspectorate to ensure Queensland improves its mining safety and health performance. We must continue to be vigilant in our common quest for an industry free of safety and health incidents.



Russell Albury
Chief Inspector of Coal Mines

Phil Goode
Chief Inspector of Mines
(Metalliferous and Quarries)

1 PERFORMANCE

Industry safety and health performance

Photo: DNRM

1. Industry safety and health performance

This report summarises information about accidents and incidents that occurred between 1 July 2014 and 30 June 2015 at Queensland mines and quarries subject to the provisions of the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999*.

Table 1.1 shows a comparison of each sector's key performance indicators for 2014–15. Performance measures for individual mines and quarries can be accessed from the Department of Natural Resources and Mines (DNRM) website at www.dnrm.qld.gov.au.

For more information on the data used in this report refer to Chapter 9.

1.1 Fatal injuries

There were four fatalities in the mining industry during 2014–15. Figure 1.1 shows the declining trend in the number of mine fatalities since 1900, with major fatality events noted on the graph. Over the last 10 years, however, the number of fatalities, while remaining at historically low levels, has fluctuated.

Figure 1.2 illustrates that even though there was a continuing decline in employee numbers across the industry in 2014–15, there was an increase in fatalities compared with 2013–14. The type of event or action that was the direct cause of the 24 fatalities in Queensland mines and quarries over the past 10 years is shown in Figure 1.3. The most common cause of fatalities was being hit by a moving object which resulted in 21 per cent of fatalities.

Coal mines

There were three fatal accidents in the coal mining sector in 2014–15. On 11 December 2014 a mineworker was installing secondary support and was fatally when a piece of 'rib' which broke away and struck him. The position 1 tyre of a CAT 777 water cart exploded during tyre fitting operations on 16 February 2015 resulting in one worker sustaining fatal injuries and another, significant injuries. On 12 March 2015 a mine worker was thrown from an overturning bus and crushed after it veered across the road and collided with a bund.

Metalliferous mines and quarries

There was one fatal accident in the metalliferous mines and quarries sector in 2014–15. A worker sustained hip and vertebrae injuries on 1 February 2015 when he was struck by a rock which rolled down the sub-level cave drawpoint rill, which he was standing on. He died in hospital while recovering from his injuries on 13 February 2015.

1.2 Permanent incapacities

There were 25 permanent incapacities reported for 2014–15 compared to 38 in 2013–14. Underground metalliferous mines reported the most permanent incapacities at seven, followed by surface coal mines and underground coal mines both reporting six, and surface metalliferous mines reporting five. Quarries reported one permanent incapacity. Table 1.2 provides further information on these permanent incapacities.

For details on the number of permanent incapacities for the 2010–2015 period refer to Table 3.8 in Chapter 3.

1.3 Lost time injuries and disabling injuries

Figures 1.4–1.6 show the LTIFR, severity rate and duration rate per month combined for all sectors over the 10 year period of 2005–15. These figures emphasise changes in trend over time. Over the last five years there has been a decreasing trend in the average LTIFR and severity rate per month. The average duration rate per month has remained steady over the same period.

The combined LTI and DI severity rate and duration rate are shown in Figures 1.7 and 1.8, respectively. The severity rate has decreased over the last 10 years while the duration rate has remained relatively steady until 2014—15 where there was a substantial decrease.

As shown in Figure 1.9 the number of LTIs in coal mines has generally increased and decreased in line with rising and falling employment numbers over the last 10 years. However the number of DIs has increased with rising employment numbers but has continued to increase while employment numbers have fallen. There was a 20 per cent increase in the number of DIs at coal mines in 2014–15 compared to 2013–14.

For metalliferous mines and quarries combined, there has been a decrease in the number of LTIs and DIs in recent years in line with falling employment numbers and the number of injuries continues to remain relatively steady in 2014–15 as shown in Figure 1.10.

1.4 High potential incidents

The number of reported HPIs continue to fall in line with decreasing employment numbers from the peak in 2011–12 as shown in Figure 1.11. The industry is to be commended on the sustained compliance with reporting of HPIs. This reporting allows for the sharing of information across the industry and enables industry to implement proactive strategies for managing the identified risks before a person is injured.

The rate of HPIs for all sectors, as shown in Table 1.3, continued to remain steady in 2014–15.

Table 1.1: Comparison of key performance indicators 2013–14 to 2014–15

	Number of lost time injuries (LTI)		Number of disabling injuries (DI)		Number of medical treatments (MTI)		Number of high potential incidents (HPI)		LTI – days lost†		Number of DI days		LTI frequency rate (LTIFR)*		LTI severity rate#†		LTI Duration rate*†		LTI + DI severity rate#		LTI + DI duration rate*		Million hours worked*		Number of permanent incapacities		Number of fatalities	
	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15	13–14	14–15
Coal surface	166	118	318	324	364	350	1 303	1 147	8 123	4 655	7 104	4 863	2.7	2.3	132	90	48.9	39.4	248	184	31.5	21.5	61.4	51.6	21	6	0	2
Coal underground	105	84	174	266	88	162	423	324	5 147	3 278	3 560	4 205	7.3	6.0	360	236	49.0	39.0	608	538	31.2	21.4	14.3	13.9	6	6	1	1
All Coal	**271**	**202**	**492**	**590**	**452**	**512**	**1 726**	**1 471**	**13 270**	**7 933**	**10 664**	**9 068**	**3.6**	**3.1**	**175**	**121**	**49.0**	**39.3**	**316**	**260**	**31.4**	**21.5**	**75.7**	**65.5**	**27**	**12**	**1**	**3**
Metalliferous surface	47	50	39	13	120	101	196	182	1 341	961	732	361	2.4	3.0	69	57	28.5	19.2	106	79	24.1	21.0	19.6	16.8	3	5	0	0
Metalliferous underground	25	31	50	74	60	44	186	173	1 821	2 041	2 231	1 801	1.9	2.4	137	158	72.8	65.8	305	298	54.0	36.6	13.3	12.9	6	7	1	1
All Metalliferous	**72**	**81**	**89**	**87**	**180**	**145**	**382**	**355**	**3 162**	**3 002**	**2 963**	**2 162**	**2.2**	**2.7**	**96**	**101**	**43.9**	**37.1**	**186**	**174**	**38.0**	**30.7**	**32.9**	**29.7**	**9**	**12**	**1**	**1**
Quarries	18	13	4	7	72	31	60	51	541	238	76	221	6.2	5.2	187	95	30.1	18.3	213	184	28.0	23.0	2.9	2.5	2	1	0	0
All Sectors	**361**	**296**	**585**	**684**	**704**	**688**	**2 168**	**1 877**	**16 973**	**11 173**	**13 703**	**11 451**	**3.2**	**3.0**	**152**	**114**	**47.0**	**37.7**	**275**	**232**	**32.4**	**23.1**	**111.5**	**97.7**	**38**	**25**	**2**	**4**

#Rounded to whole numbers
*Rounded to 1 decimal place
†Days lost to LTIs include lost time days and days on alternative duties

Figure 1.12 outlines the number of HPIs per type of incident for all sectors combined. The five most common causes of HPIs reported in 2014–15, were:

1. Vehicle
2. Fire
3. Other
4. Use of explosives
5. Electrical.

The most common type of HPI reported for surface coal mines was related to vehicles, while for underground coal mines the most common type was related to 'other' types of incidents according to Figures 1.13 and 1.14, respectively. Surface and underground metalliferous mines, and quarries reported vehicle related incidents as the most common type of HPI, as illustrated in Figures 1.15—1.17.

Safety alerts and bulletins issued by DNRM in response to a number of HPIs are reported in Table 1.4. Further information on HPIs including graphical breakdowns and statistics by sector is available from the DNRM website at www.dnrm.qld.gov.au.

Below is a description of a number of HPIs that happened during 2014—15 and are of particular concern.

Coal mines

- A light vehicle driven by a surveyor had to take evasive action to avoid a collision with a rear dump truck on a blind corner of a mine road. The surveyor was conducting a survey scan and was on the wrong side of the road.
- An unidentified misfired explosive was initiated at a dig face by a shovel bucket. Flyrock struck the shovel window, below the shovel cab and the window of a nearby dozer. The operator of the dump truck being loaded underwent a hearing test as a precaution.
- While working in a pit, when equipment operators identified 'dribbling' rock on the highwall, they quickly moved out of the area and notified the open cut examiner. Twenty-five minutes later this area of the highwall, which also contained loaded blast holes, failed and came two thirds of the way across the pit to where people were located.
- A longwall shearer, with a permit to mine, cut into a gas drainage drill string. The permit didn't advise of a drill string in the hole. Fortunately there was no gas present.
- While towing a breaker feeder into an underground mine, a 936 Eimco lost traction and slid forward onto the breaker feeder. In attempting to manage the loss of control, the Eimco was steered into the 'rib' causing the vehicle to jack knife.
- A shearer that had a rock jammed in the spill tray was travelling through the main gate when the jammed rock impacted an overhead electrical cable, resulting in open arcing.
- While removing the main gate leg from a shield on the longwall face, a fitter was struck on the leg as he was lowering the leg with a chain block. The fitter sustained fractures to his leg below the knee.

Metalliferous mines and quarries

- A mud rush from an ore pass washed over a Cat 2900 loader while the loader was reversing away with a full bucket. The material broke a window and entered the cab.
- An operator of a Cat 2900 loader was clearing a hung up ore pass when the material suddenly rilled covering the loader back past the cab.
- An excavator was at the base of a bench loading material into a mobile crusher when a fist sized rock fell from the bench above and smashed through the cab window.
- While setting up in a drive to charge stope down-holes the operator of a Normet charge car reversed over the edge of the stope. The vehicle came to rest on backfill 3.5 m below.
- A Cat 323E excavator was being driven onto a low loader when it overbalanced and toppled from the low loader onto its side onto the ground. The operator received minor injuries.
- While the counterweight rope on a winder was being non-destructive tested, the brakes failed and the counter weight fell to the bottom of the shaft with the rope spooling off the drum and falling down the shaft as well.
- Part of a crusher chute which was being lifted during maintenance, fell and struck the foot of a worker who was assisting with the lift. He sustained a partial amputation of the big toe on his right foot.
- A personnel and supply shaft conveyance automatically returned to the surface from a shaft plat while the plat gate was open. The plat gate switch had been bypassed earlier because of a problem with the gate.
- While changing a drill bit during scaling operations a jumbo operator was struck on the left hand by a rock which fell from the back. He sustained a severe laceration and fractured bones in his hand.
- A miner was clearing away muck from the toe of a development face with a pelican pick to find the lifter holes when he was struck and knocked off his feet by rocks that fell from the face. He sustained minor injuries.
- Approximately 220 t of rock fell from the back of a stope drawpoint while three workers were charging up-holes for a stope firing. One worker was working from an elevated work platform (EWP) basket while the other two were assisting from the ground. The EWP was not impacted by the fall however a rock struck one of the other workers on the left leg as he was retreating. He sustained a fractured bone in his left foot.

- A miner was changing a drill bit on a Jumbo drill rig when rock fell from the face. He was struck on the right leg by a rock, weighing approximately 150 kg, which fractured his right lower leg.
- The operator of an Elphinstone 1700 loader was cleaning up scaled down material in a stope drawpoint access drive when approximately 260 t of rock fell from the sidewall and shoulder of the drive onto the loader. The operator was recovered from the loader after rocks were removed enabling him to escape via the rear window.
- While using a crow bar to clear a blockage in an auger on a Scorpion pug mill, the auger rotated catching the operator's foot. He required surgery to his foot.
- While disassembling a crusher mantle, the sacrificial ring on the head nut blew out hitting a worker in the face. He sustained a broken tooth and required stitches in his top lip.
- A worker assisting an air leg drill operator to collar a hole got his gloved right hand caught by the rotating drill steel. He sustained an open fracture to his right thumb.
- While opening a 50 mm diameter pressure relief valve on a sand slurry line the valve failed catastrophically striking the operator in the face. He sustained a fractured cheek bone.
- A rear tyre ruptured on a loaded Atlas Copco 6020 dump truck travelling up a decline. The tyre failure caused a rock, weighing approximately 15 kg, to be propelled into a light vehicle following the truck, striking the cabin roof and windscreen.
- While installing a head rope on a winder, a deflector sheave assembly located behind the winder has detached from its mounting and struck the winder drum.
- During a weekly maintenance test a shaft conveyance failed to stop at the surface and entered the jack catches in the headframe. The rope and capel then detached, landing in front of the winder house.
- During the positioning of a demountable building with a Franna crane, a worker was caught between the corner of the elevated building and the end section of a previously positioned demountable building. He sustained fractured ribs.
- The operator of a Cat 777G belly dumper haul truck leaving a stockpile initially didn't see a light vehicle approaching from the right as it entered the intersection. Both vehicles then stopped, ending up within 20 m of each other.
- As a Cat 980G loader reversed after tipping into a feed bin it collided with a Cat 980H loader which was waiting to tip.
- A dual cab light vehicle rolled onto its side when the driver lost control of the vehicle on a section of recently watered haul road.
- While travelling down a ramp a Cat 789 dump truck operator had a micro sleep and the truck veered into the side wall of the ramp before the operator regained control.
- A Cat 12H grader ran away down a 1:7 decline after a loss of engine power. The grader travelled for a distance of 427 m before being brought to a stop.
- A fire ignited on a Cat AD55 dump truck after a failed drive shaft damaged guards and hydraulic hoses resulting in oil spraying onto the hot exhaust. The fire was put out by using hand held extinguishers. The resulting smoke caused workers to be evacuated to emergency refuge bays.
- An arc flash occurred in a substation when an incorrectly sized fuse overheated.
- A worker carrying out exploration activities failed to return at the end of shift. He was found safe and well following a search the next morning.

Figure 1.1: Fatalities in Queensland mines (all sectors), 1900–2015

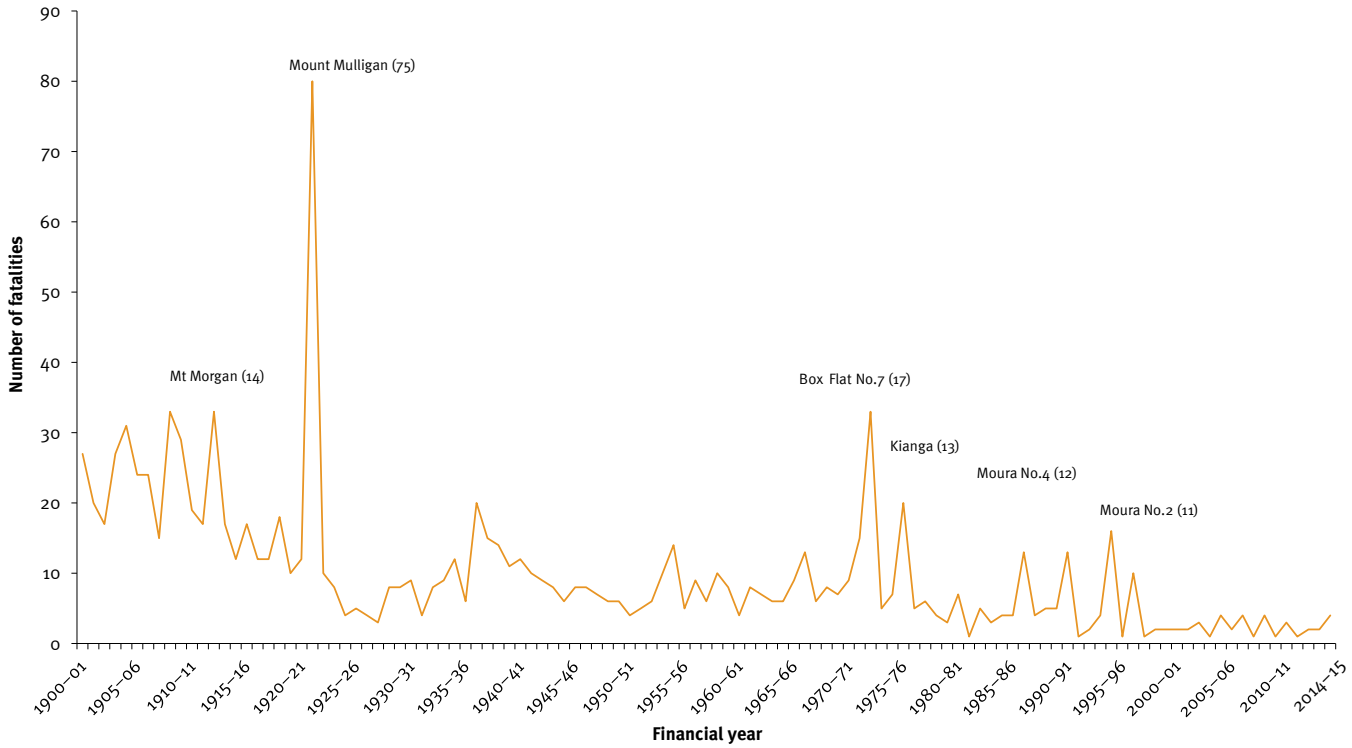
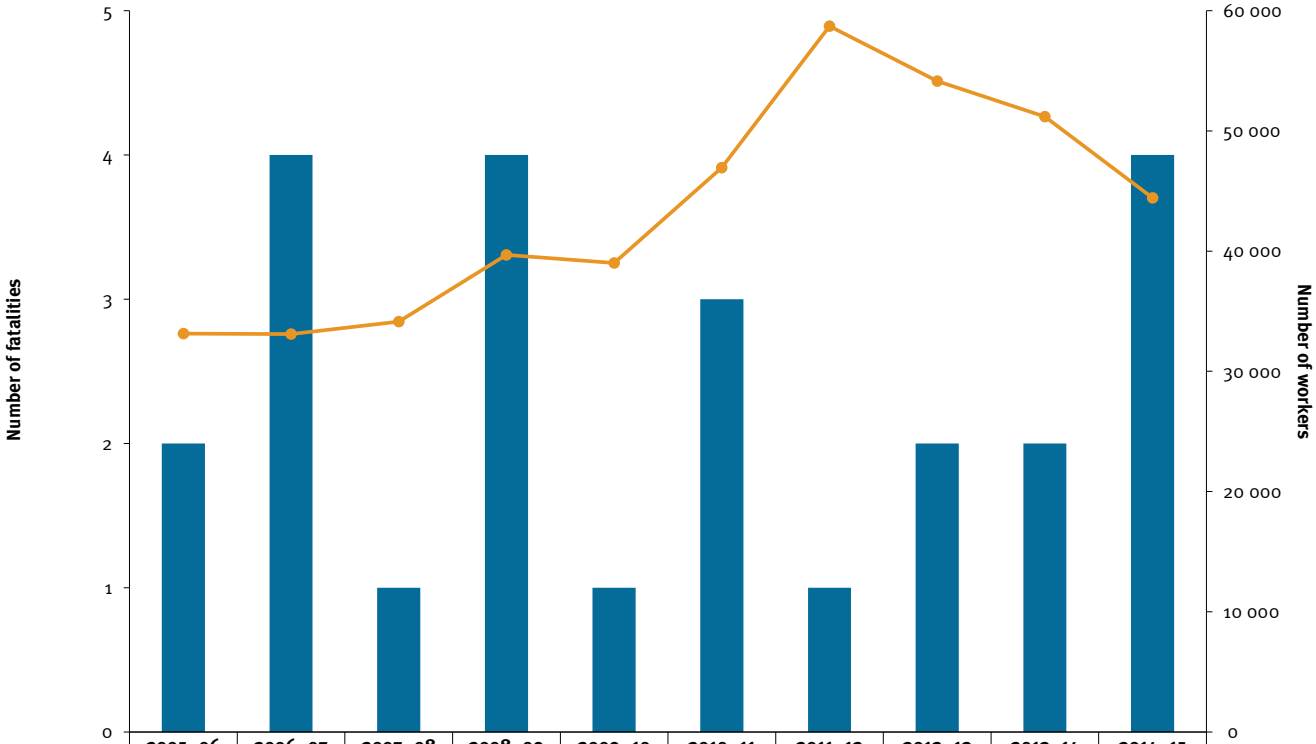


Figure 1.2: Fatalities versus employment numbers (all sectors), 2005–15



	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15
Fatalities	2	4	1	4	1	3	1	2	2	4
No. of workers	33 132	33 092	34 135	39 691	39 013	46 936	58 713	54 147	51 194	44 433

Table 1.2: Permanent incapacities reported by mines, 2014–15

Injury/disease	Incapacity type	Incapacity description	Qty
Coal surface			
Sprain/strain	Other/unspecified injury	Unspecified Injuries	1
Contusion	Other/unspecified injury	Unspecified Injuries	1
Other disease of musculoskeletal system and connection tissue	Trunk–back	Unspecified Injuries	1
Traumatic amputation	Upper limbs–hand/finger/thumb	Left ring finger was crushed	1
Unspecified injury	Neck	Chronic neck pain	1
	Other/unspecified injury	Unspecified Injuries	1
Coal underground			
Traumatic amputation	Upper limbs–hand/finger/thumb	5th finger partial amputation	1
Other diseases	Lung	Pneumoconiosis	1
Unspecified Injury	Other/unspecified injury	Lower back/knee/physiological	4
Metalliferous surface			
Fracture (not of vertebral column)	Trunk–back–upper/lower	Coccyx bone injury	1
Open wound	Upper limbs–hand/finger/thumb	3rd finger flesh removed including nail	1
Unspecified Injury	Other/unspecified injury	Person struck by slurry line pressure relief valve	1
	Lower back	Coccyx bone injury	1
	Upper limbs–arm/neck	Injured arm and/or neck drove into pot hole	1
Metalliferous underground			
Sprain/strain	Lower back	Strain lumbar spine	1
Open wound	Upper limbs–hand/finger/thumb	Crushed hand	1
Traumatic amputation	Upper limbs–hand/finger/thumb	Finger crushed	1
	Other/unspecified injury	Hand pinched between basket and paste pipe	1
Unspecified Injury	Lower limbs–knee	Degenerative knee conditions (both)	2
	Lung	Interstitial lung disease and sarcoma	1
Quarries			
Unspecified Injuries	Lower limbs–knee	Knee injuries	1
Total			**25**

Figure 1.3: Mechanism of fatalities (all sectors), 2005–15

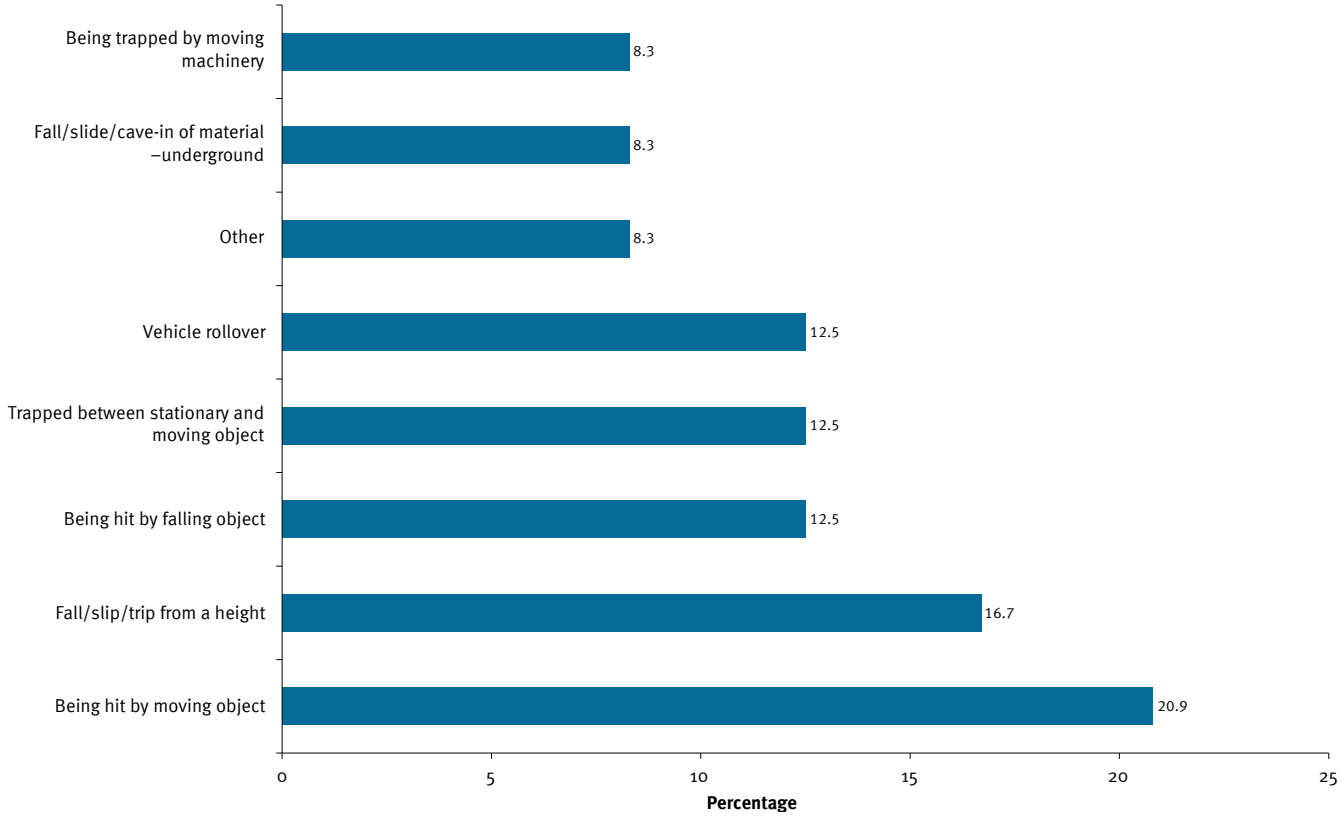


Figure 1.4: Lost time injury frequency rate per month (all sectors), 2005–15

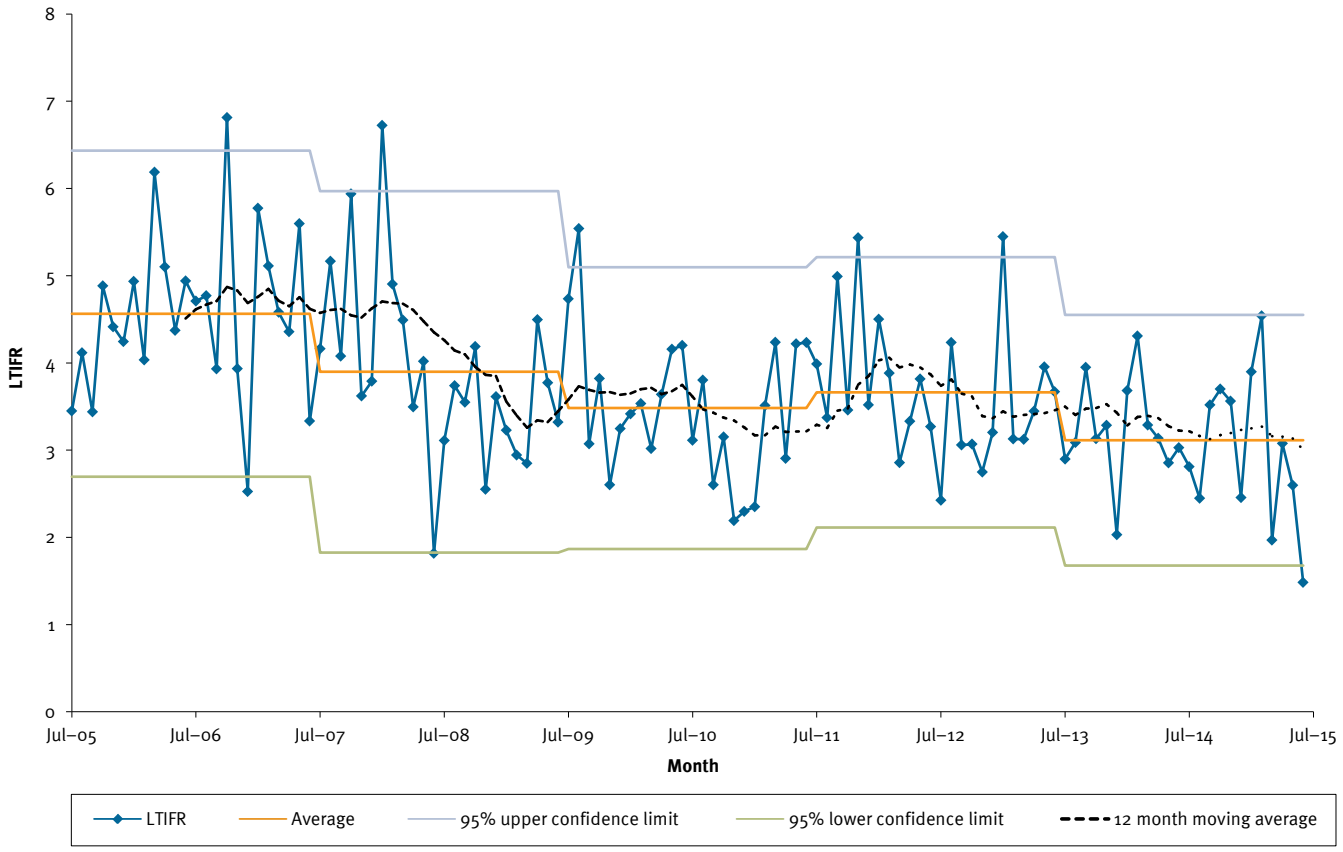


Table 1.3: High potential incident rate (per 1000 workers), 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	47	40	46	47	47
Coal–underground	54	52	61	64	52
All coal	**48**	**42**	**48**	**50**	**48**
Metalliferous–surface	24	35	28	22	25
Metalliferous–underground	31	35	32	30	33
All metalliferous	**27**	**35**	**30**	**25**	**28**
Quarries	50	53	47	37	39
All sectors	**42**	**41**	**43**	**42**	**42**

Table 1.4: Safety alerts and bulletins relating to high potential incidents, 2014–15

Electrical	
Safety Alert 308	Arc flash and blast when 1000V circuit breaker reset
Safety Alert 315	Damaged cable results in feeder breaker fire
Equipment/structure failure	
Safety Alert 317	Dust sampling pumps used in underground coal mines
Falls or slips of ground	
Safety Alert 313	Fatal accident following rib failure in an underground coal mine
Safety Alert 316	Working from rills
Safety Bulletin 145	Highwall failures
Loss of control/unplanned movement	
Safety Alert 311	Serious accident at longwall maingate AFC drive
Persons falling	
Safety Alert 309	Fatal accident from falling into an ore pass
Physical work environment	
Safety Alert 310	Missing exploration worker
Safety Bulletin 148	4 Bolt primary roof support patterns
Safety Bulletin 149	Emergency response plans
Vehicle	
Safety Alert 314	Four wheel drive bus rollover fatality
Safety Bulletin 144	Uncontrolled movement on mine roads involving skidding and sliding

Figure 1.5: Lost time injury severity rate per month (all sectors), 2005–15

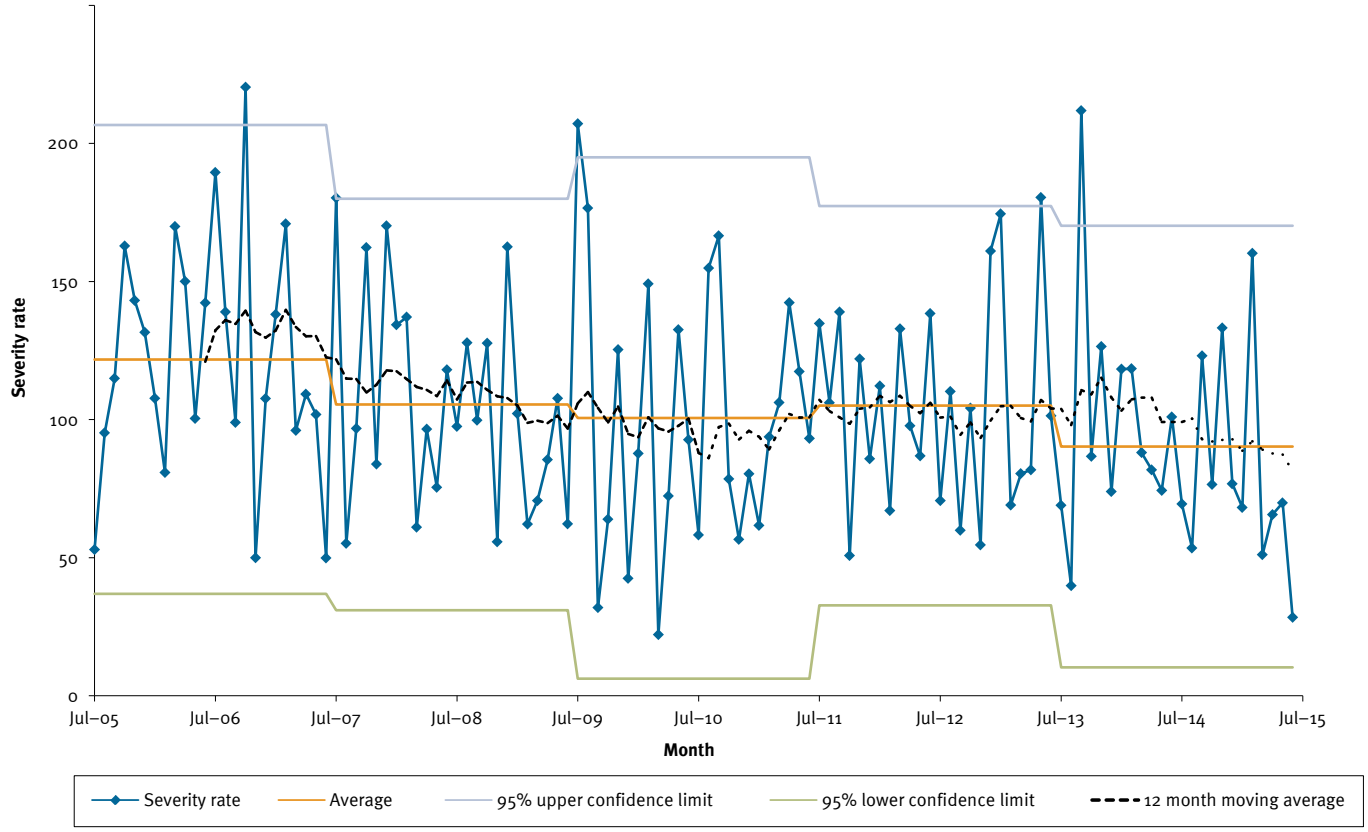


Figure 1.6: Lost time injury duration rate per month (all sectors), 2005–15

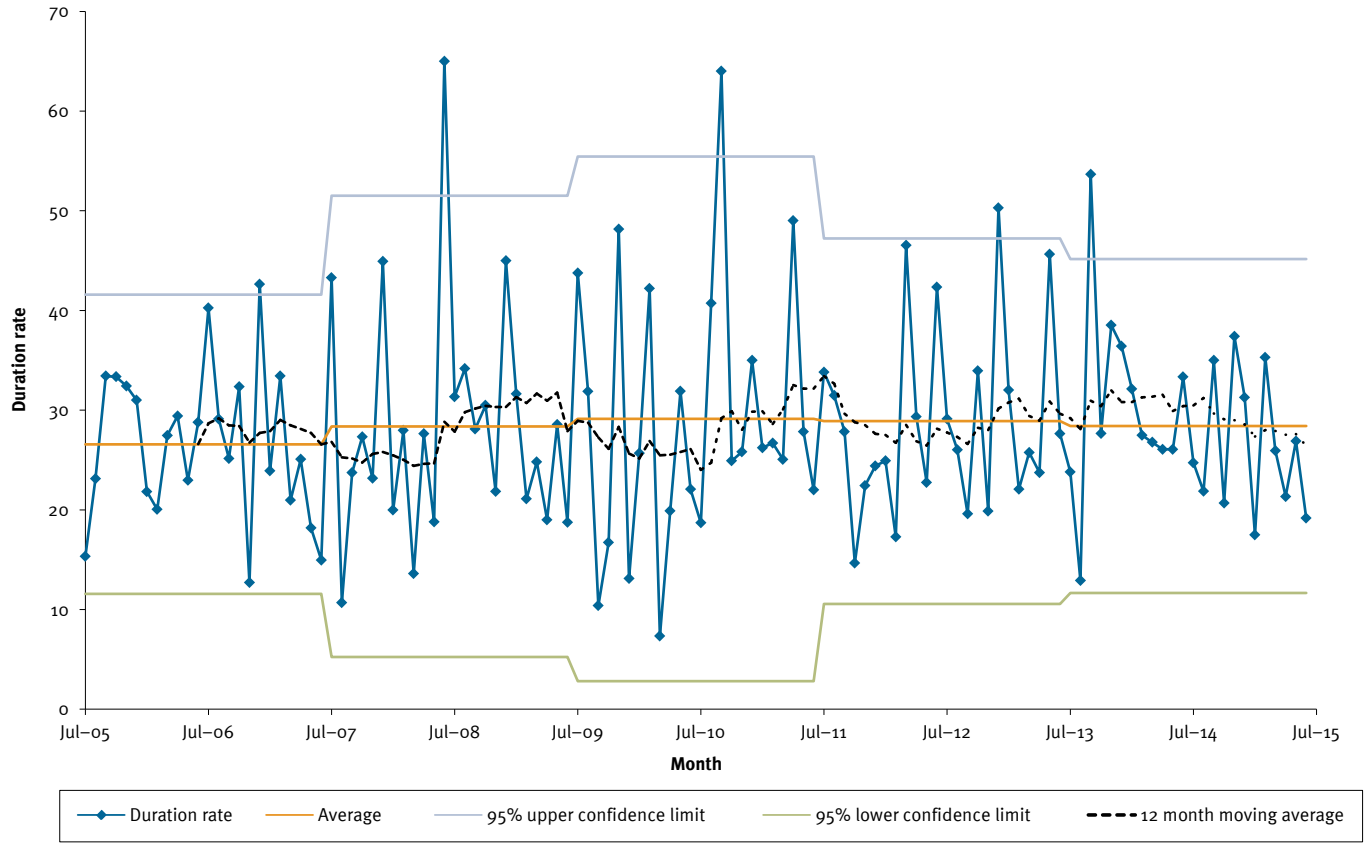
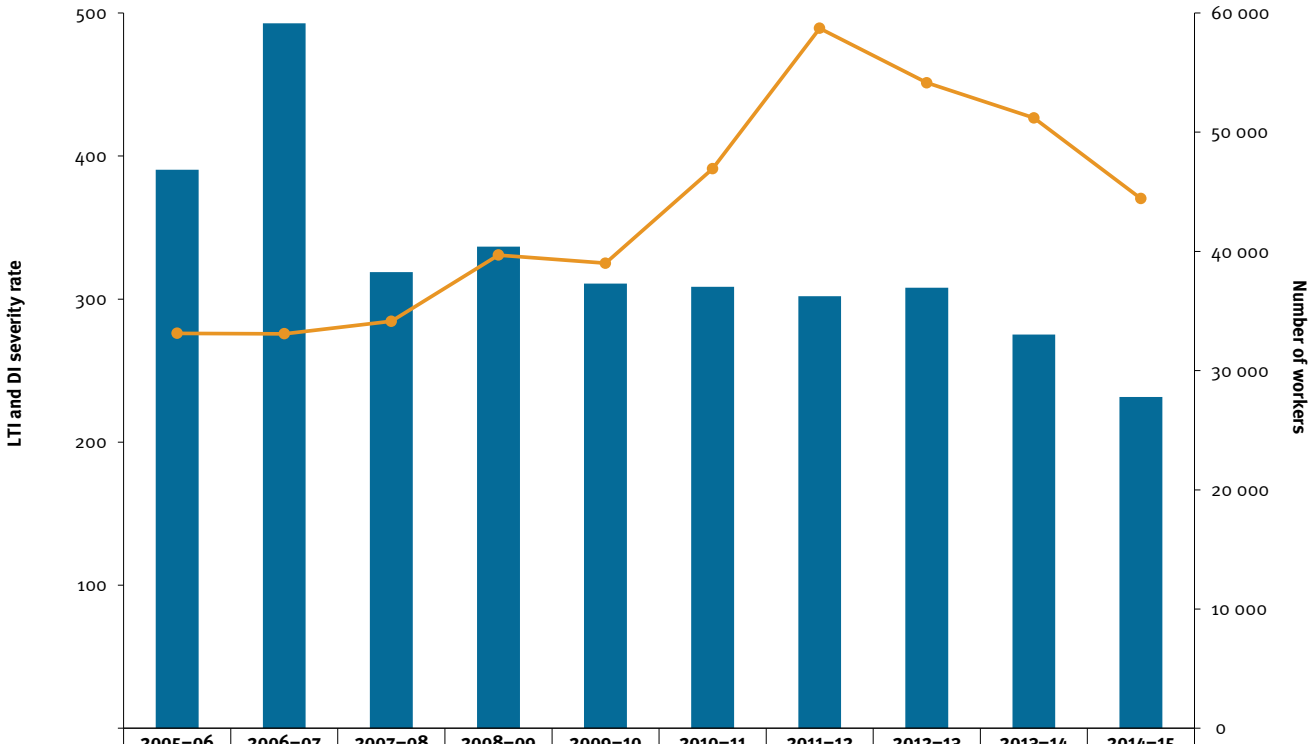


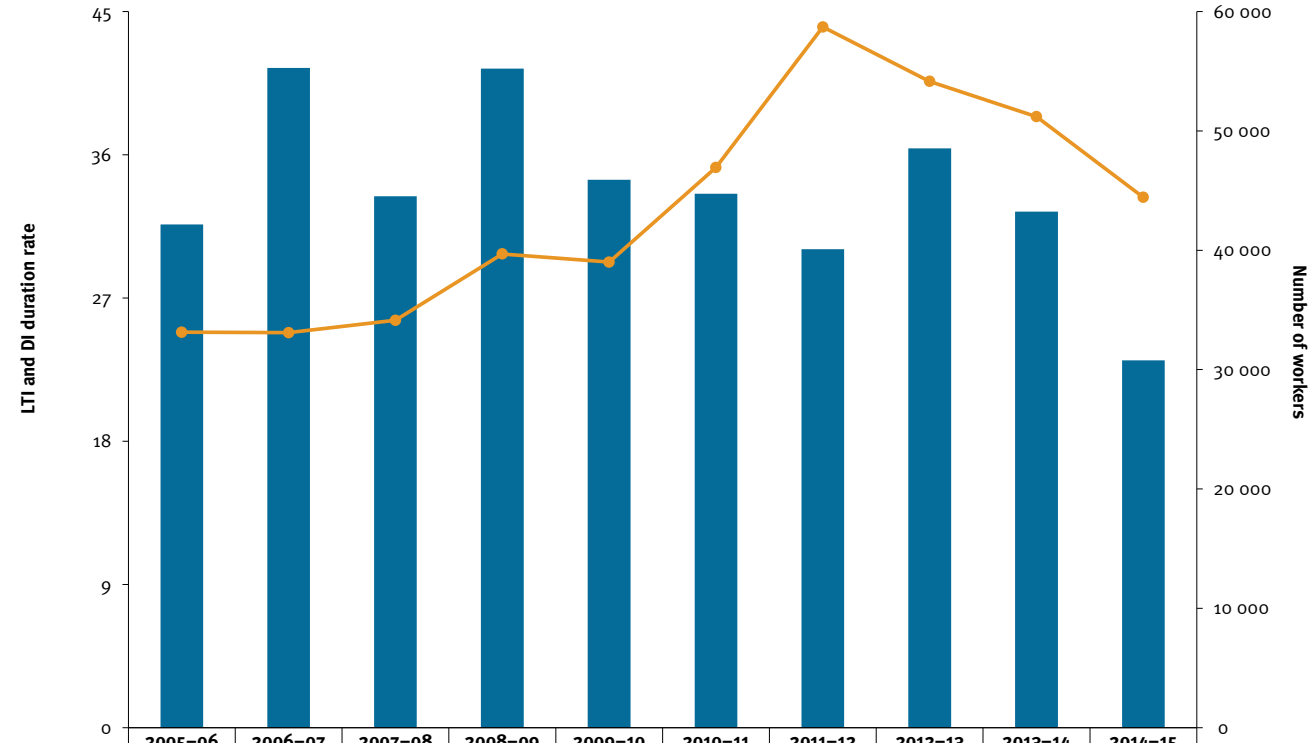
Figure 1.7: Lost time and disabling injury severity rate versus employment numbers (all sectors), 2005–15



	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15
Severity rate	390	493	319	337	311	309	302	308	275	232
No. of workers	33 132	33 092	34 135	39 691	39 013	46 936	58 713	54 147	51 194	44 433

Financial year

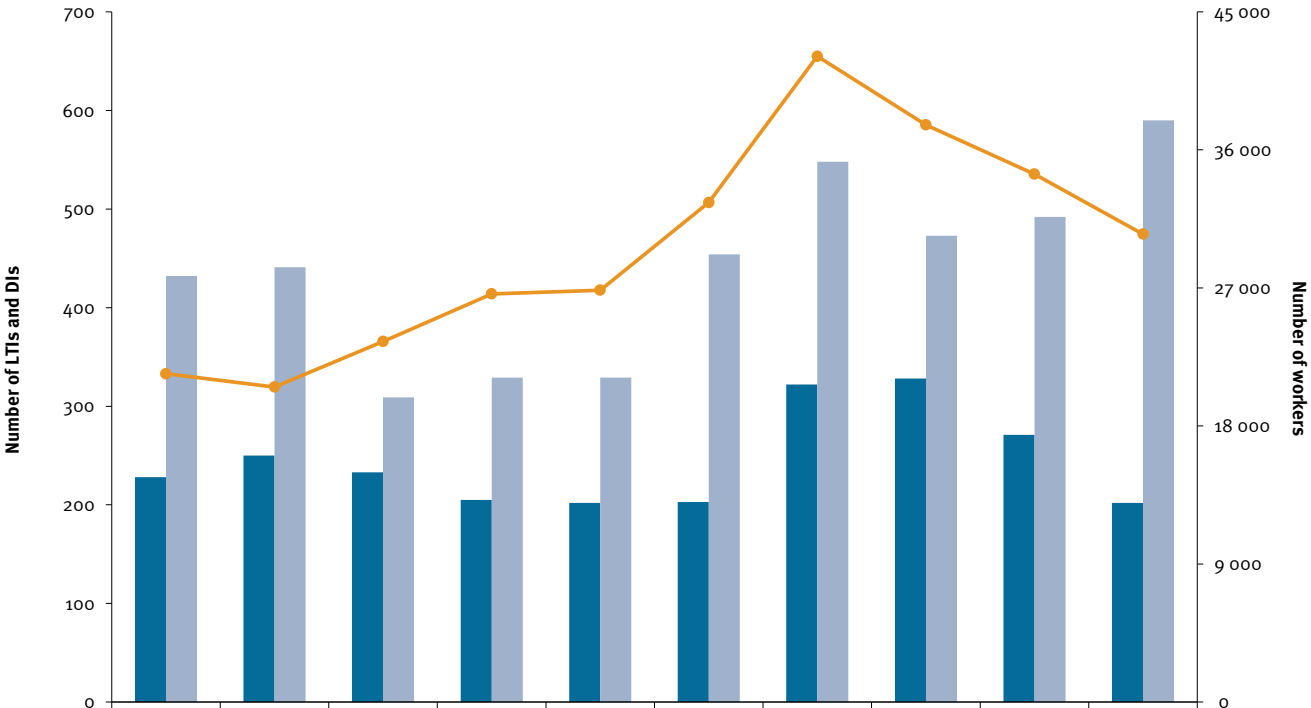
Figure 1.8: Lost time and disabling injury duration rate versus employment numbers (all sectors), 2005–15



	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15
Duration rate	31.6	41.5	33.4	41.4	34.4	33.5	30.1	36.4	32.4	23.1
No. of workers	33 132	33 092	34 135	39 691	39 013	46 936	58 713	54 147	51 194	44 433

Financial year

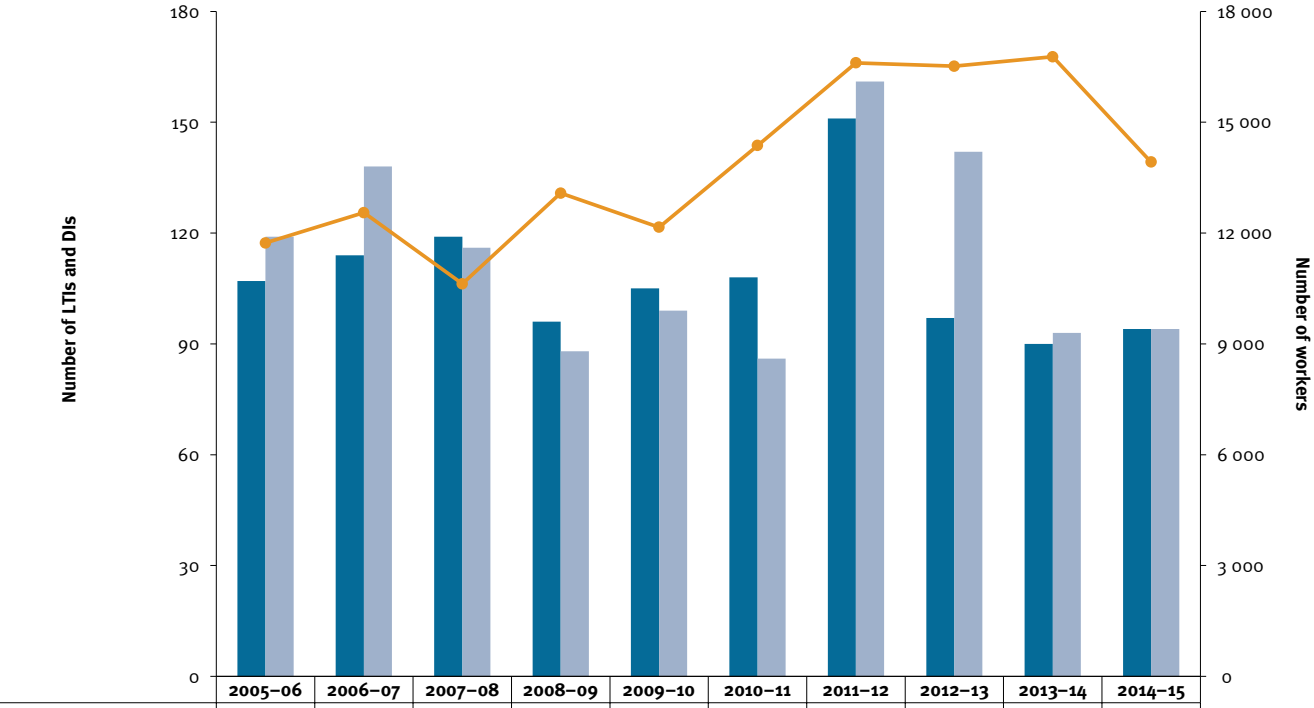
Figure 1.9: Lost time and disabling injuries versus employment numbers (coal mines), 2005–15



	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15
Coal LTIs	228	250	233	205	202	203	322	328	271	202
Coal DIs	432	441	309	329	329	454	548	473	492	590
Coal workers	21 400	20 539	23 510	26 611	26 855	32 568	42 108	37 632	34 423	30 510

Financial year

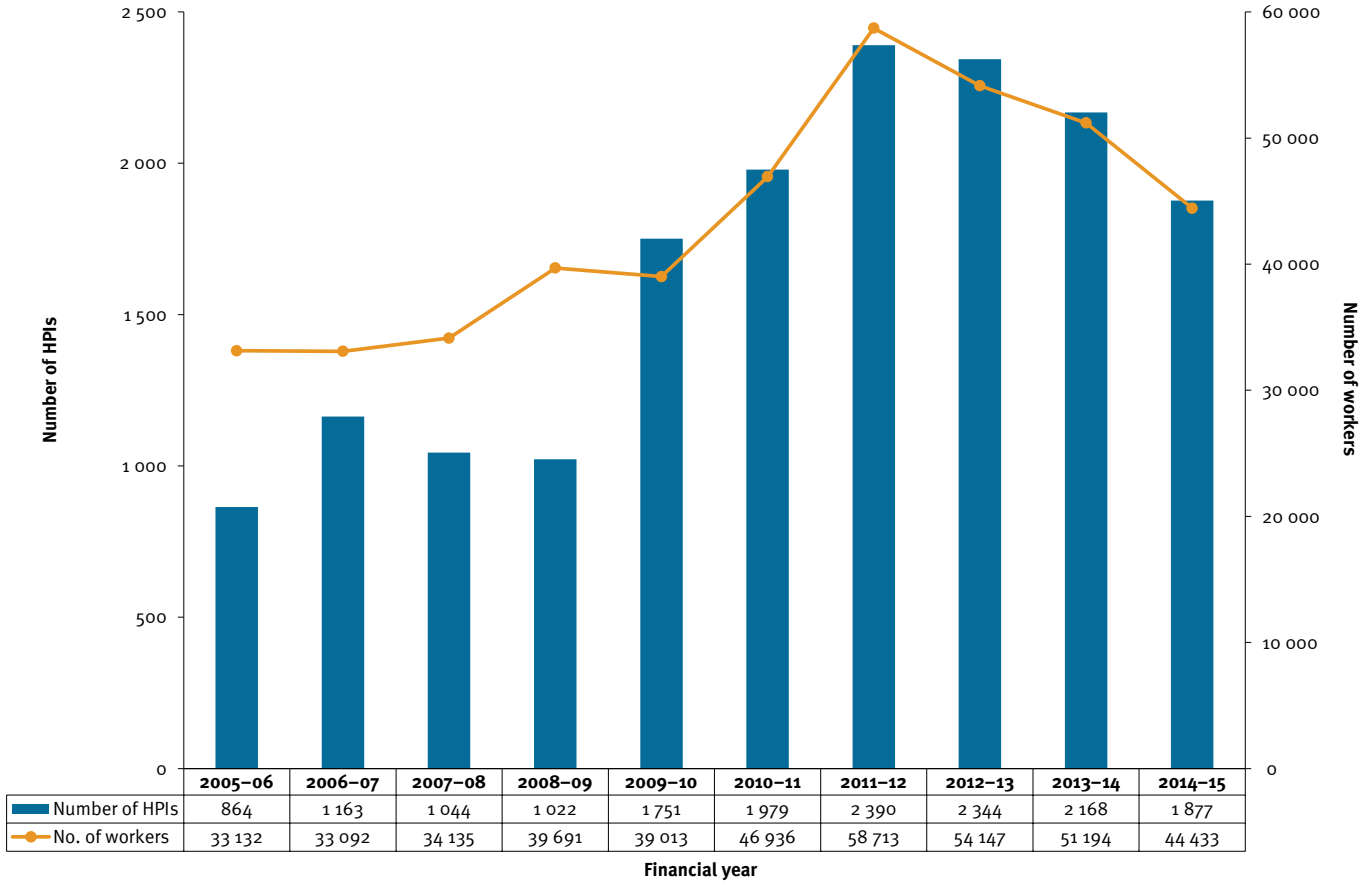
Figure 1.10: Lost time and disabling injuries versus employment numbers (metalliferous mines and quarries), 2005–15



	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15
Met and quarries LTIs	107	114	119	96	105	108	151	97	90	94
Met and quarries DIs	119	138	116	88	99	86	161	142	93	94
Met and quarries workers	11 732	12 553	10 625	13 080	12 158	14 368	16 605	16 515	16 771	13 923

Financial year

Figure 1.11: High potential incidents versus employment numbers (all sectors), 2005–15



	2005–06	2006–07	2007–08	2008–09	2009–10	2010–11	2011–12	2012–13	2013–14	2014–15
Number of HPIs	864	1 163	1 044	1 022	1 751	1 979	2 390	2 344	2 168	1 877
No. of workers	33 132	33 092	34 135	39 691	39 013	46 936	58 713	54 147	51 194	44 433

Financial year

Figure 1.12: High potential incidents by type (all sectors), 2012–15

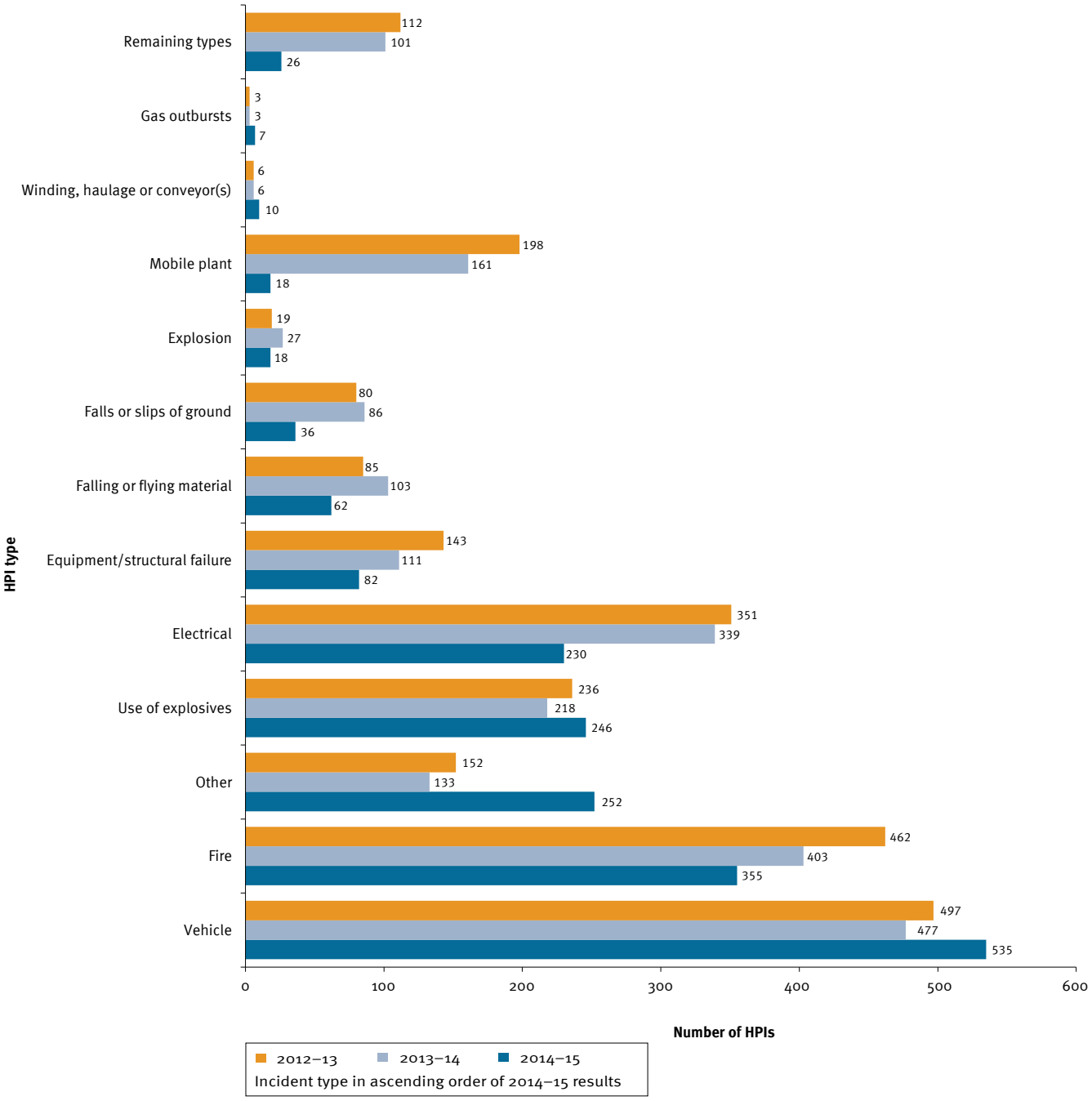


Figure 1.13: High potential incidents by type (surface coal mines), 2014–15

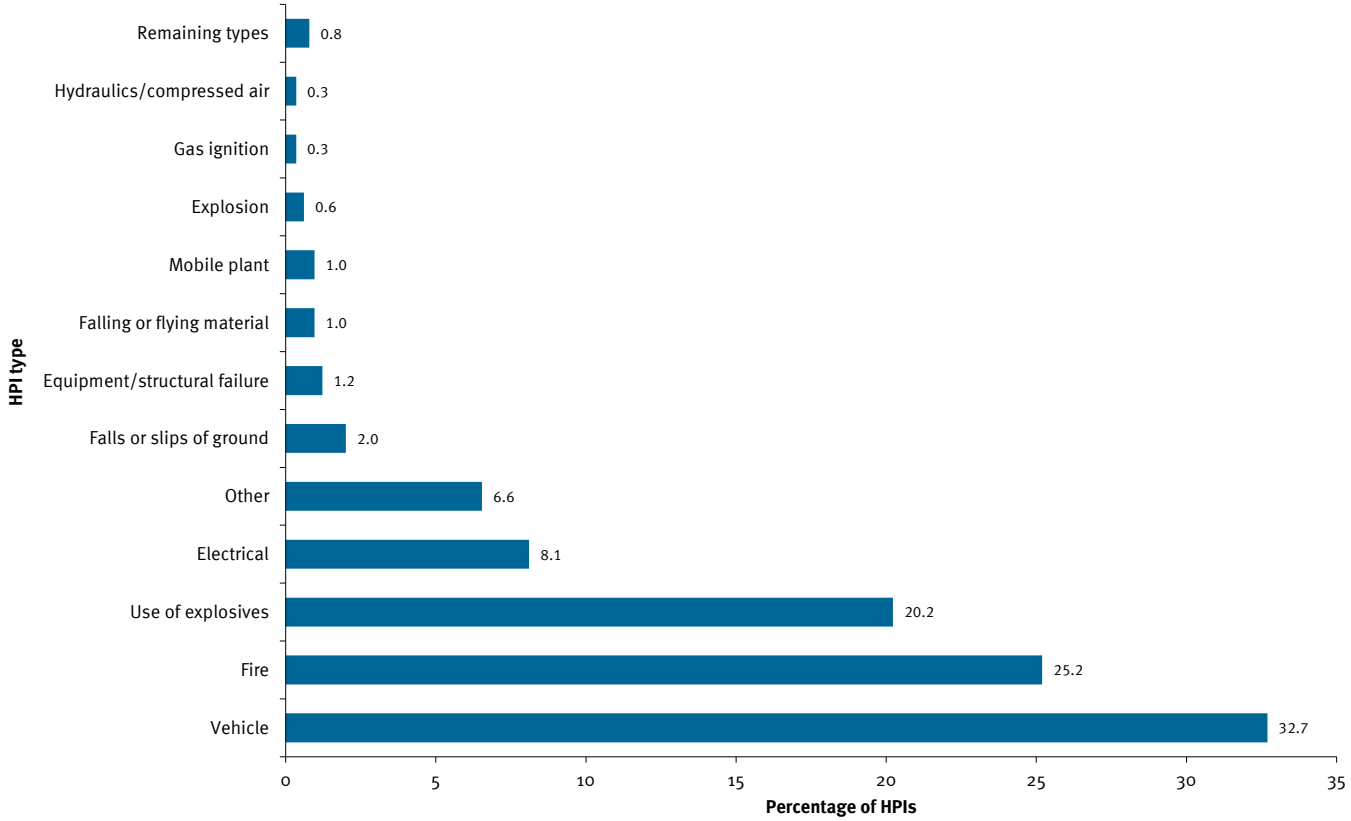


Figure 1.14: High potential incidents by type (underground coal mines), 2014–15

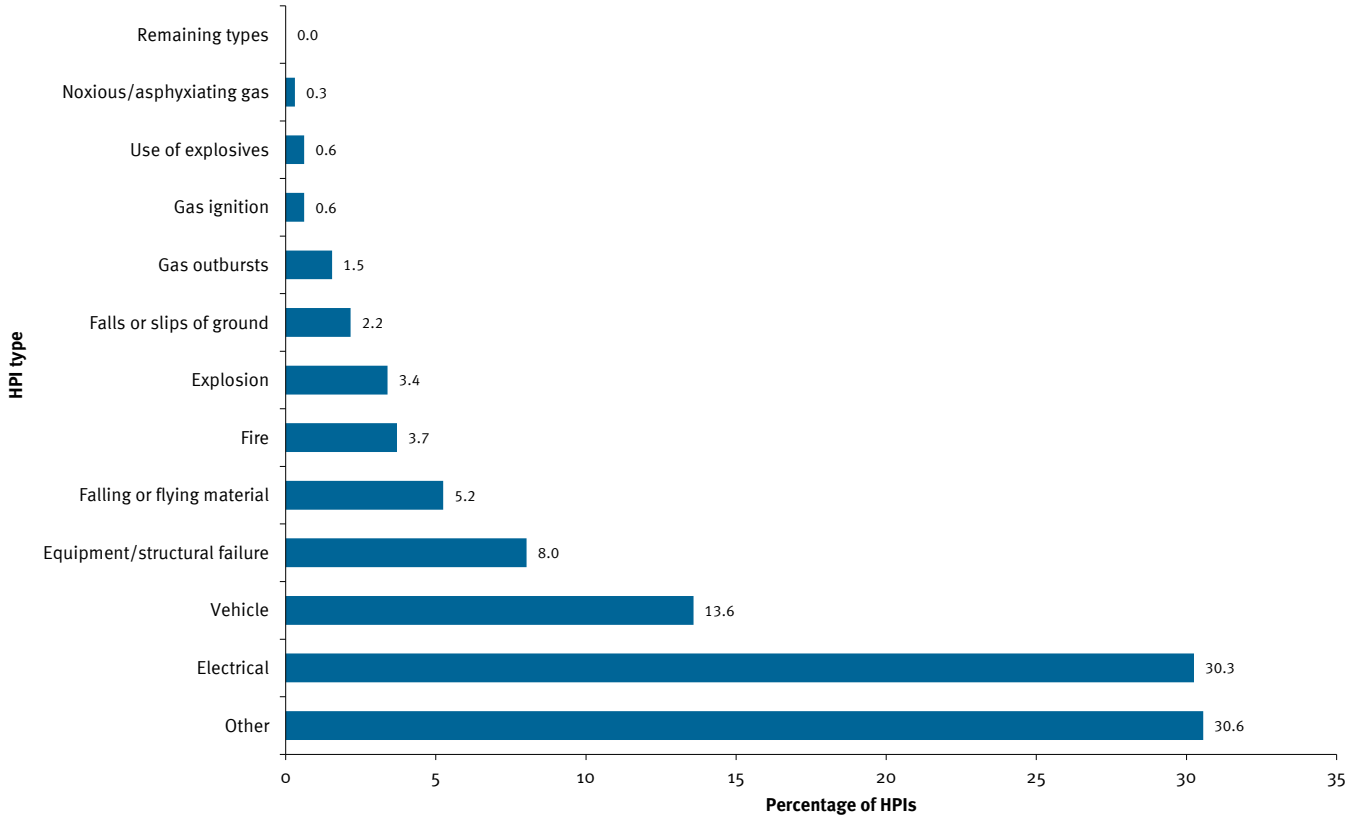


Figure 1.15: High potential incidents by type (surface metalliferous mines), 2014–15

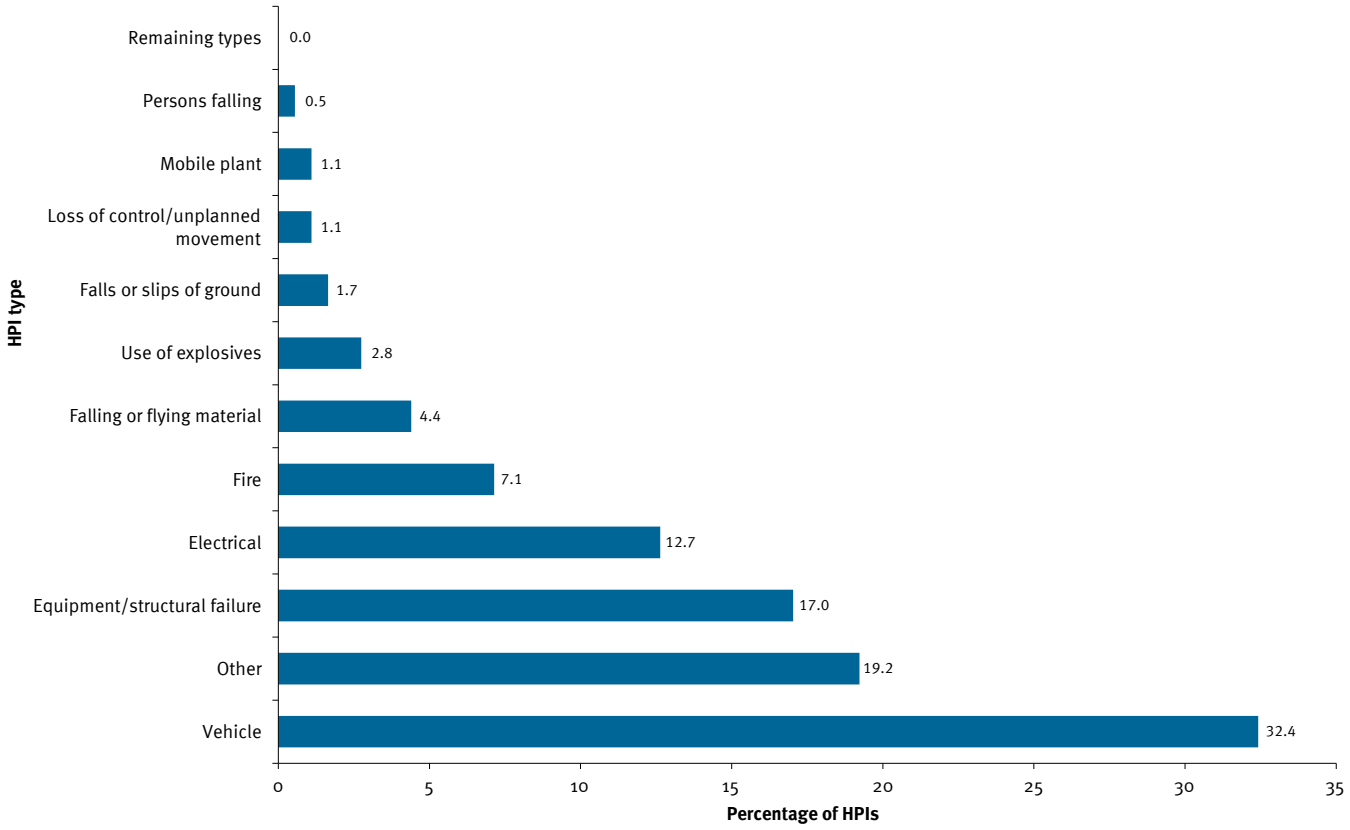


Figure 1.16: High potential incidents by type (underground metalliferous mines), 2014–15

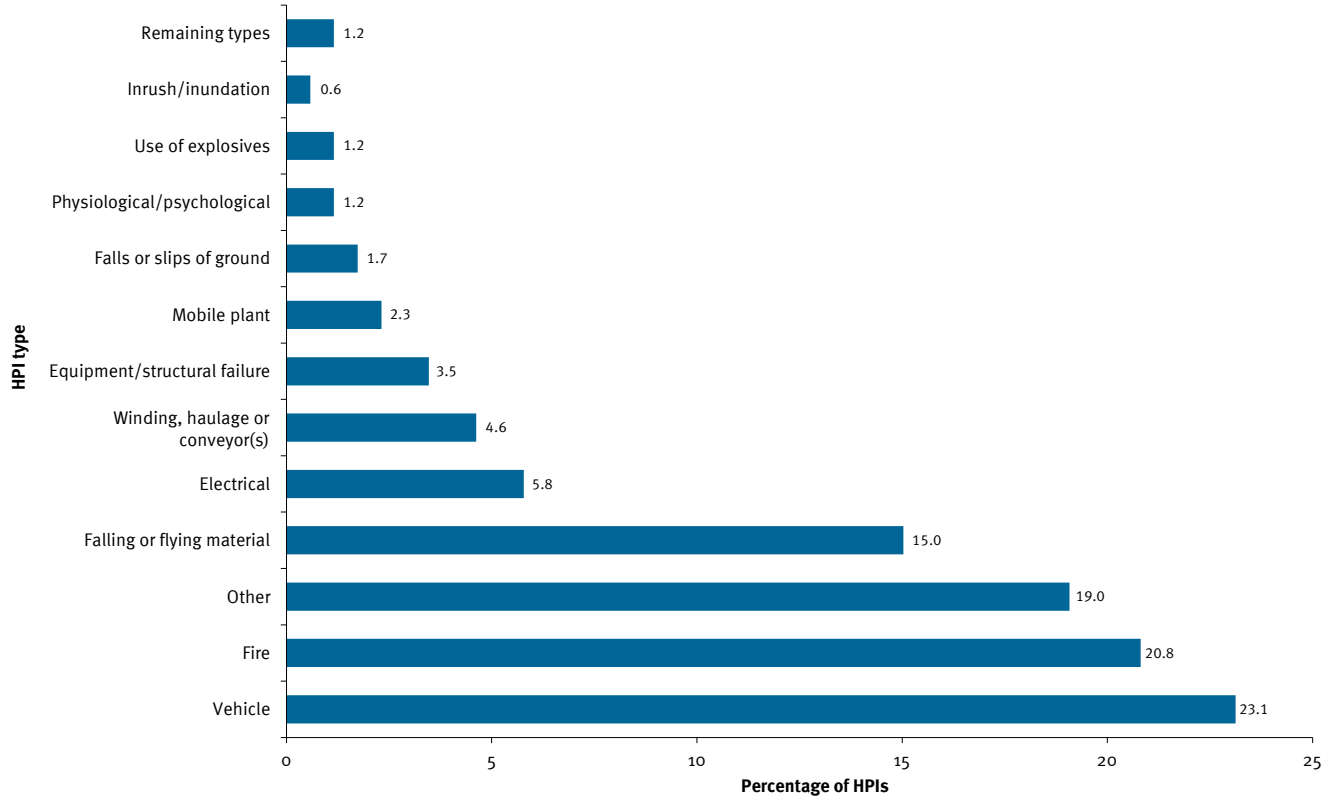
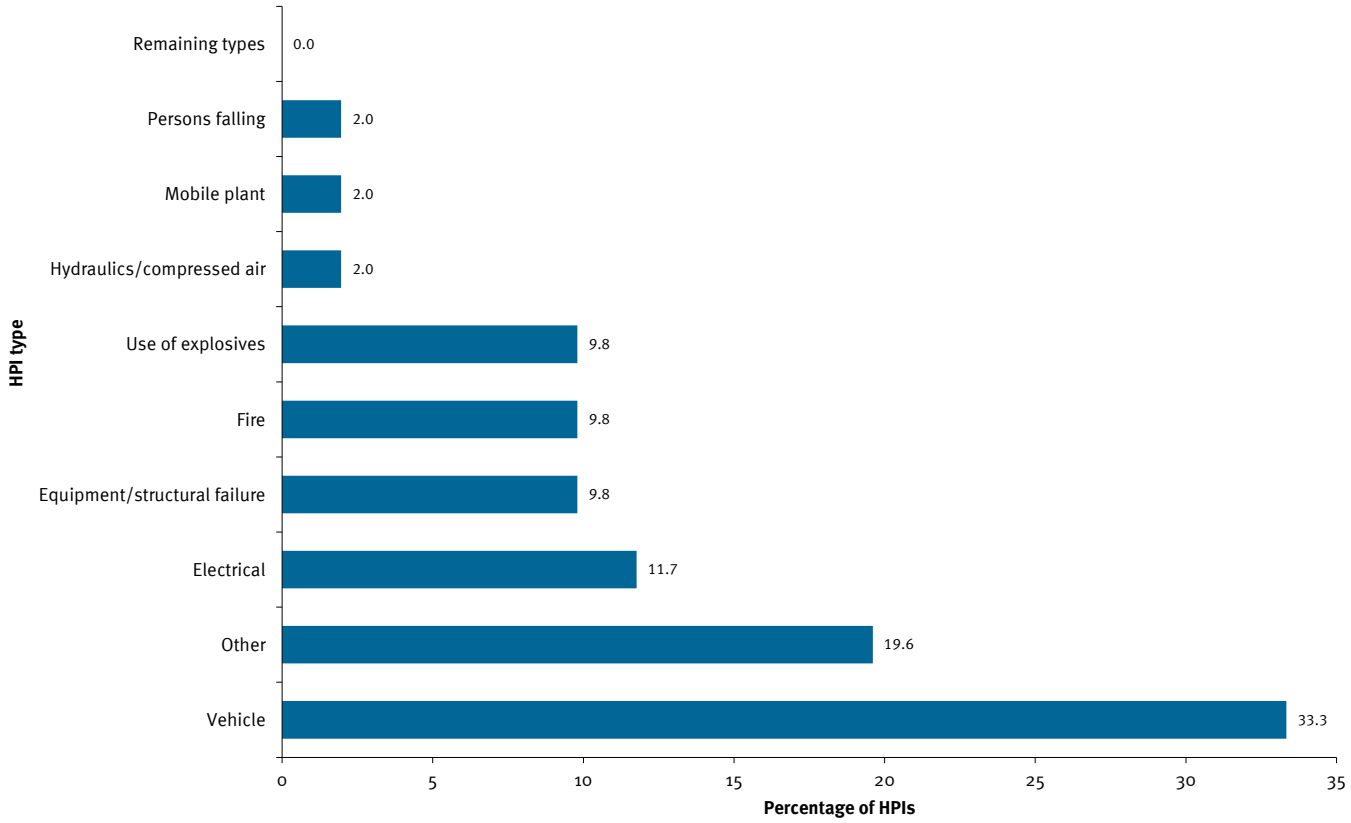


Figure 1.17: High potential incidents by type (quarries), 2014–15



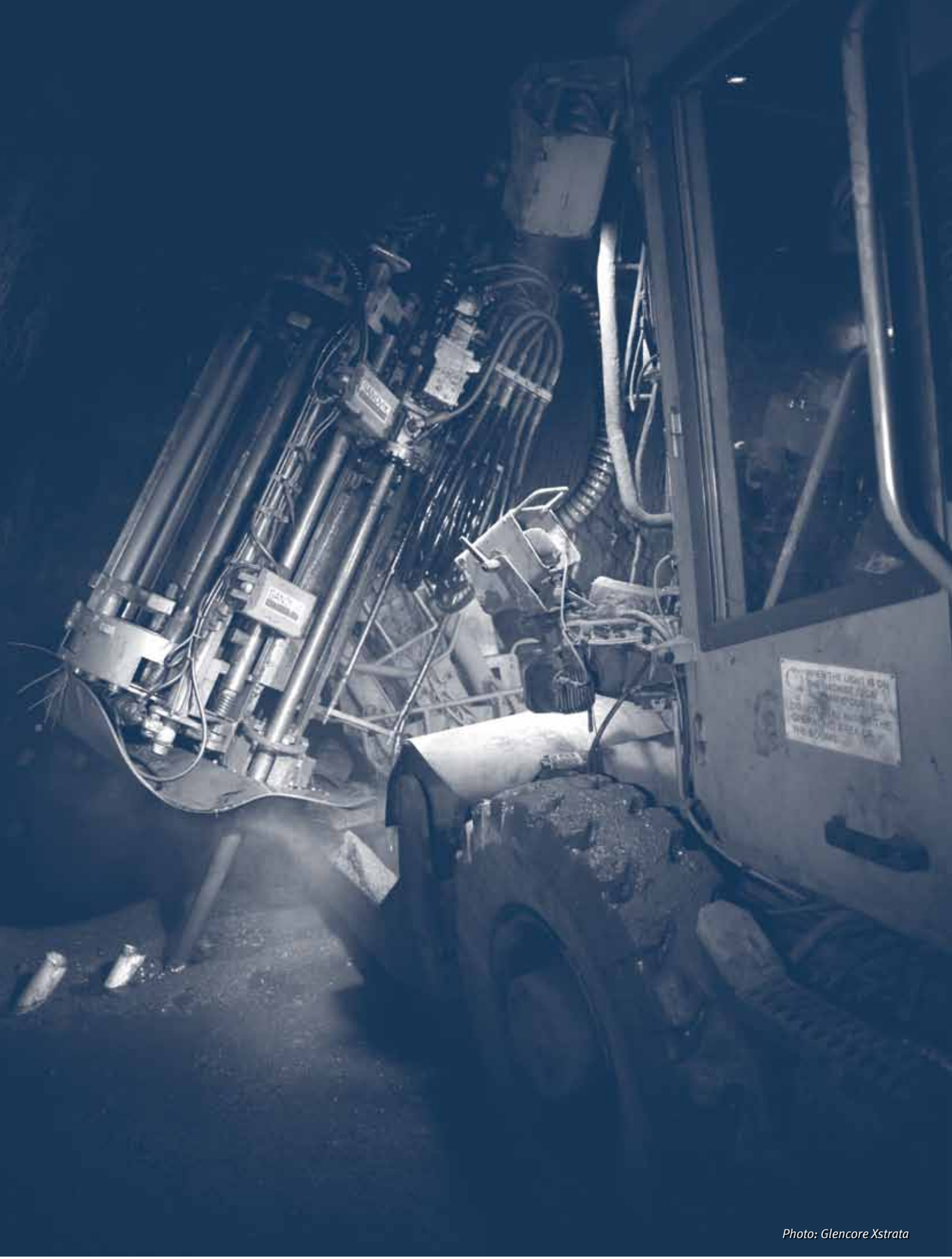


Photo: Glencore Xstrata

2 MINES INSPECTORATE

The Mines Inspectorate

Photo: DNRM

2. The Mines Inspectorate

2.1 Miners Memorial Day

Every year on 19 September a service is held on the anniversary of Queensland's worst mining disaster in which 75 coal miners lost their lives at the Mount Mulligan Mine in 1921. The 2014 Miners Memorial Day service was held in Moura and commemorated the lives of more than 1500 miners who have died in Queensland mining tragedies since 1877.

Members of the clergy, government, unions, industry officials and families of deceased mine workers were invited to attend and lay wreaths at the service. The service was also attended by members of the local mining community as well as the then Minister for Natural Resources and Mines Andrew Cripps, Acting Commissioner for Mine Safety and Health Paul Harrison, the then Director-General of DNRM Dr Brett Heyward and representatives of the Mines Inspectorate and Simtars.

The 20th anniversary of the Moura No.2 tragedy was also commemorated in 2014 with a service held in Moura. Acting Commissioner for Mine Safety and Health Paul Harrison, the then Chief Inspector of Coal Mines Andrew Clough, representatives from the Mines Inspectorate, along with members of unions, industry and family and friends, remembered the eleven mine workers who died on 7 August 1994 as a result of an explosion in the Moura No. 2 underground coal mine.

2.2 Prosecutions and other enforcement actions

Coal mines

On 13 January 2013, an incident occurred at the cable storage area of an underground coal mine in Central Queensland. A coal mine worker suffered serious crush injuries when his left arm was caught in a 'pinch point' on the cable reeler attachment of a front end loader. He was trapped for approximately one hour before assistance arrived as he had no means of communicating for help. No specialised equipment was provided at the location of the cable for the task of detaching the cable reel from the front end loader.

The operator company was prosecuted for failing to discharge its safety and health obligations and causing grievous bodily harm, contrary to section 34 of the *Coal Mining Safety and Health Act 1999*. The contravention involved failures relating to the provision of a safe place of work and safe plant and to audit and review the effectiveness of the safety and health management system.

The operator company pleaded guilty and received a $75 000 fine and was required to pay $4859.26 in professional costs and disbursements. The prosecution was finalised in December 2014.

On 9 January 2013, an incident occurred at a site accommodation camp for an open cut coal mine in the Central Queensland when a delivery driver employed by a contractor received burns to his torso and right arm while discharging effluent from the sewerage storage tanks at the camp.

Photo: DNRM

The contractor was prosecuted for failing to discharge its safety and health obligations and causing bodily harm, contrary to section 34 of the *Coal Mining Safety and Health Act 1999*. The contraventions involved failures relating to complying with the safety and health management system of the mine, ensuring that risk assessments were in place, induction training was completed, adequate training was provided, equipment was inspected, assessed, maintained and used safely, an operator's manual was provided with the equipment and that vaccinations were offered to employees.

The contractor company pleaded guilty and received a $75 000 fine and was required to pay $22 446.68 in investigation costs and $3626.30 in professional costs and disbursements. This defendant was sentenced in May 2015.

Proceedings are still ongoing for additional defendants in relation to this incident.

Metalliferous mines and quarries

On 6 March 2013, an incident occurred at a metalliferous mine in northwest Queensland in which a contractor's employee was fatally injured after being struck in the head when a pump fell, while being lifted with a crane.

The main contractor company that operated equipment in the area where the incident occurred and the sub-contractor company engaged by the main contractor to complete maintenance work (which included lifting the pump) were both prosecuted for failing to discharge their safety and health obligations and causing the death of the worker, contrary to section 31 of the *Mining and Quarrying Safety and Health Act 1999*. The contraventions involved failing to ensure that provisions of the mine's safety and health management system were complied with and failing to ensure compliance with safety controls.

The main contractor company, who pleaded guilty, received a $90 000 fine and was required to pay $25 300.97 in investigation costs and $3610.19 in professional costs and disbursements. This defendant was sentenced in March 2015.

The sub-contractor company, who also pleaded guilty, received a $90 000 fine and was required to pay $25 300.97 in investigation costs and $6461.59 in professional costs and disbursements. This defendant was sentenced in April 2015.

The supervisor (crane operator) employed by the sub-contractor company was prosecuted for failing to discharge his safety and health obligations, contrary to section 31 of the *Mining and Quarrying Safety and Health Act 1999*. The contravention involved failing to ensure compliance with safety controls.

The supervisor pleaded guilty and received a $30 000 fine and was required to pay $25 300.97 in investigation costs and $6461.59 in professional costs and disbursements. This defendant was sentenced in April 2015.

Proceedings are still ongoing for additional defendants in relation to this incident.

2.3 Complaints about safety and health at mines

Queensland mine safety and health legislation allows mine workers, their representatives or others to make confidential complaints about safety and health matters to the Mines Inspectorate.

During 2014–15, 115 complaints were received, of which 78 were from mine workers or their representatives. The complaints were divided into the categories shown in Figure 2.1. Complaints about mineworker safety included lack of machine guarding or fall protection, airborne dust, inadequate equipment maintenance, lack of competency and training, drug use, poor supervision, failure to report incidents to the Mines Inspectorate, workplace bullying and isolation procedures not being followed.

The Mines Inspectorate has finalised 101 of the 115 complaints (87 per cent) at this time with outcomes including:

- directive/s or substandard condition or practice notice/s issued by the Mines Inspectorate
- a mine record entry being made by the Mines Inspectorate
- the Mines Inspectorate contacting the site
- the complaint being addressed by other means.

2.4 Inspections and audits conducted by the Mines Inspectorate

Inspectors and inspection officers have the power to enter and inspect or audit mines and quarries under the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999*.

Table 2.1 shows details of mines inspectorate activities in 2014–15. There were 1545 inspections and 62 audits completed in 2014–15.

Figure 2.1: Complaints by type (all sectors), 2014–15 (compared with 2013–14)

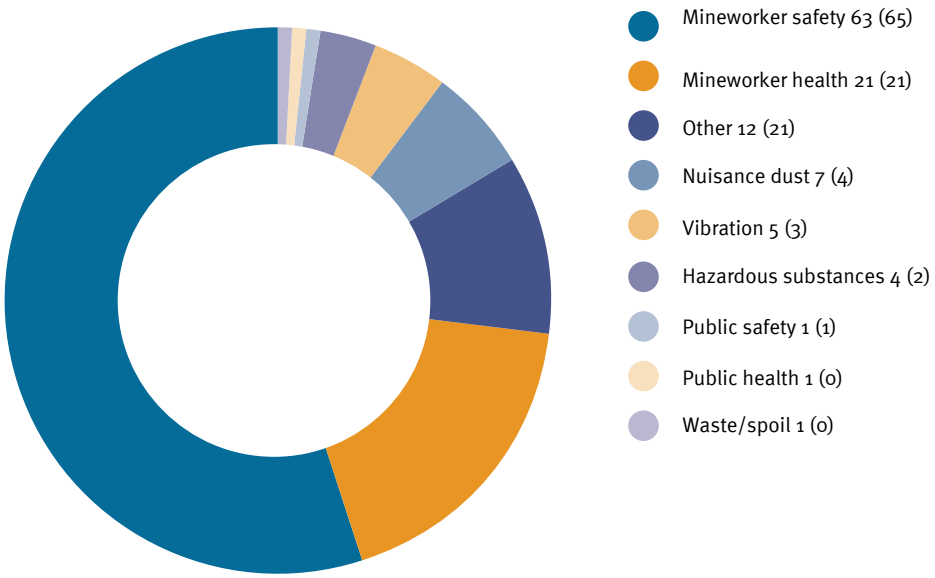


Table 2.1: Mines Inspectorate activity, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Inspections	1 321	1 387	1 451	1 487	1 431
Inspections–unannounced	161	136	127	135	102
Inspections–weekend or backshift	18	8	13	12	10
Inspections–unannounced weekend or backshift	12	12	11	7	2
Audits–subject or system specific	135	48	14	36	35
Audits–compliance audits	44	7	19	13	27

2.5 Directives issued by the Mines Inspectorate

Inspectors and inspection officers have the power to issue various directives under the *Coal Mining Safety and Health Act 1999* and the *Mining and Quarrying Safety and Health Act 1999*.

During 2014–15 the Mines Inspectorate issued 240 directives; a decrease from the 307 issued in 2013–14. Of these directives, 112 were issued to coal mines and 128 to metalliferous mines and quarries. The number of directives issued by each region were:

- 152 in the Central Region
- 60 in the North Region
- 28 in the South Region.

The directives issued included direction to:

- ensure coal mine workers are competent
- ensure workers are competent
- isolate a site
- carry out a test
- reduce risk
- suspend operations for unacceptable level of risk
- review the safety and health management system and principal hazard management plans
- review the safety and health management system
- suspend operations for ineffective safety and health management system.

3 INCIDENT NUMBERS

Lag performance indicators: incident numbers

Photo: DNRM

3. Lag performance indicators: incident numbers

The following tables show five-year trends in a number of indicators used to assess safety and health performance across the industry. These are the raw, unadjusted numbers and cannot be used for comparison of industry sectors. Adjusted data and rates are presented in Chapter 4 of this report.

The performance indicators plotted are:

- Table 3.1: Number of lost time injuries, 2010–15
- Table 3.2: Number of lost time injury days (days away from work only), 2010–15
- Table 3.3: Number of lost time injury days (days away from work and days on alternative duties), 2010–15
- Table 3.4: Number of disabling injuries (days on alternative duties), 2010–15
- Table 3.5: Number of disabling injury days (days on alternative duties), 2010–15
- Table 3.6: Number of lost time injuries and disabling injuries, 2010–15
- Table 3.7: Number of lost time injury and disabling injury days (days away from work and days on alternative duties), 2010–15
- Table 3.8: Number of permanent incapacities, 2010–15
- Table 3.9: Number of fatalities, 2010–15
- Table 3.10: Number of medical treatment injuries, 2010–15
- Table 3.11: Number of total recordable injuries, 2010–15
- Table 3.12: Number of reported high potential incidents, 2010–15
- Table 3.13: Number of employees at 30 June, 2010–15
- Table 3.14: Total hours worked (millions), 2010–15

These indicators are lag indicators and are a measure of performance after the event. Lead indicators, while difficult to define and measure, show the positive steps taken to prevent incidents from occurring. A suite of lead indicators were measured and these are detailed in Chapter 6 of this report.

The number of TRIs shown in Table 3.11 is a more accurate reflection of safety and health performance compared to the use of the number of LTIs alone. Using the number of LTIs as the main safety and health measure can be manipulated by having injured or sick workers prematurely return to work on light or alternative duties.

Table 3.3 shows the number of days lost from work and the number of days on alternative duties for LTIs. Most jurisdictions in Australia do not include the number of days on alternative duties but only count the days lost from work (see Table 3.2). The true severity of an injury can only be assessed by evaluating the number of days a worker is away from their normal job. So, it is necessary to count the days lost from work and the days on alternative duties when assessing injury severity.

Table 3.1: Number of lost time injuries, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	150	200	219	166	118
Coal–underground	53	122	109	105	84
Coal subtotal	**203**	**322**	**328**	**271**	**202**
Metalliferous–surface	53	75	64	47	50
Metalliferous–underground	27	50	19	25	31
Metalliferous subtotal	**80**	**125**	**83**	**72**	**81**
Quarries	28	26	14	18	13
All operations	**311**	**473**	**425**	**361**	**296**

Table 3.2: Number of lost time injury days (days away from work only), 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	4 988	5 212	7 425	5 011	3 469
Coal–underground	1 287	3 129	3 132	3 381	2 271
Coal subtotal	**6 275**	**8 341**	**10 557**	**8 392**	**5 740**
Metalliferous–surface	994	1 521	1 239	851	470
Metalliferous–underground	621	1 023	479	1 303	1 423
Metalliferous subtotal	**1 615**	**2 544**	**1 718**	**2 154**	**1 893**
Quarries	1 023	571	410	427	180
All operations	**8 913**	**11 456**	**12 685**	**10 973**	**7 813**

Table 3.3: Number of lost time injury days (days away from work and days on alternative duties), 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	10 297	9 594	12 951	8 123	4 655
Coal–underground	2 463	5 453	6 559	5 147	3 278
Coal subtotal	**12 760**	**15 047**	**19 510**	**13 270**	**7 933**
Metalliferous–surface	1 375	1 896	1 833	1 341	961
Metalliferous–underground	1 132	1 451	1 265	1 821	2 041
Metalliferous subtotal	**2 507**	**3 347**	**3 098**	**3 162**	**3 002**
Quarries	1 605	734	435	541	238
All operations	**16 872**	**19 128**	**23 043**	**16 973**	**11 173**

Table 3.4: Number of disabling injuries (days on alternative duties), 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	270	356	308	318	324
Coal–underground	184	192	165	174	266
Coal subtotal	**454**	**548**	**473**	**492**	**590**
Metalliferous–surface	35	59	61	39	13
Metalliferous–underground	51	92	80	50	74
Metalliferous subtotal	**86**	**151**	**141**	**89**	**87**
Quarries	0	10	1	4	7
All operations	**540**	**709**	**615**	**585**	**684**

Table 3.5: Number of disabling injury days (days on alternative duties), 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	6 010	8 955	6 613	7 104	4 863
Coal–underground	3 836	2 711	3 466	3 560	4 205
Coal subtotal	**9 846**	**11 666**	**10 079**	**10 664**	**9 068**
Metalliferous–surface	876	1 565	1 931	732	361
Metalliferous–underground	955	2 951	2 790	2 231	1 801
Metalliferous subtotal	**1 831**	**4 516**	**4 721**	**2 963**	**2 162**
Quarries	0	231	17	76	221
All operations	**11 677**	**16 413**	**14 817**	**13 703**	**11 451**

Table 3.6: Number of lost time injuries and disabling injuries, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	420	556	527	484	442
Coal–underground	237	314	274	279	350
Coal subtotal	**657**	**870**	**801**	**763**	**792**
Metalliferous–surface	88	134	125	86	63
Metalliferous–underground	78	142	99	75	105
Metalliferous subtotal	**166**	**276**	**224**	**161**	**168**
Quarries	28	36	15	22	20
All operations	**851**	**1 182**	**1 040**	**946**	**980**

Table 3.7: Number of lost time injury and disabling injury days (days away from work and days on alternative duties), 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	16 307	18 549	19 564	15 227	9 518
Coal–underground	6 299	8 164	10 025	8 707	7 483
Coal subtotal	**22 606**	**26 713**	**29 589**	**23 934**	**17 001**
Metalliferous–surface	2 251	3 461	3 764	2 073	1 322
Metalliferous–underground	2 087	4 402	4 055	4 052	3 842
Metalliferous subtotal	**4 338**	**7 863**	**7 819**	**6 125**	**5 164**
Quarries	1 605	965	452	617	459
All operations	**28 549**	**35 541**	**37 860**	**30 676**	**22 624**

Table 3.8: Number of permanent incapacities, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	40	16	16	21	6
Coal–underground	10	3	7	6	6
Coal subtotal	**50**	**19**	**23**	**27**	**12**
Metalliferous–surface	1	3	6	3	5
Metalliferous–underground	1	3	1	6	7
Metalliferous subtotal	**2**	**6**	**7**	**9**	**12**
Quarries	5	3	2	2	1
All operations	**57**	**28**	**32**	**38**	**25**

Table 3.9: Number of fatalities, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	2	0	0	0	2
Coal–underground	0	0	0	1	1
Coal subtotal	**2**	**0**	**0**	**1**	**3**
Metalliferous–surface	0	0	2	0	0
Metalliferous–underground	1	0	0	1	1
Metalliferous subtotal	**1**	**0**	**2**	**1**	**1**
Quarries	0	1	0	0	0
Exploration	0	0	0	0	0
All operations	**3**	**1**	**2**	**2**	**4**

Table 3.10: Number of medical treatment injuries, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	403	463	396	364	350
Coal–underground	271	350	201	88	162
Coal subtotal	**674**	**813**	**597**	**452**	**512**
Metalliferous–surface	88	197	131	120	101
Metalliferous–underground	60	149	79	60	44
Metalliferous subtotal	**148**	**346**	**210**	**180**	**145**
Quarries	31	35	58	72	31
All operations	**853**	**1 194**	**865**	**704**	**688**

Table 3.11: Number of total recordable injuries, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	823	1 019	923	848	792
Coal–underground	508	664	475	367	512
Coal subtotal	**1 331**	**1 683**	**1 398**	**1 215**	**1 304**
Metalliferous–surface	176	331	256	206	164
Metalliferous–underground	138	291	178	135	149
Metalliferous subtotal	314	**622**	**434**	**341**	**313**
Quarries	59	71	73	94	51
All operations	**1 704**	**2 376**	**1 905**	**1 650**	**1 668**

Table 3.12: Number of reported high potential incidents, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	1 228	1 380	1 397	1 303	1147
Coal–underground	338	398	428	423	324
Coal subtotal	**1 566**	**1 778**	**1 825**	**1 726**	**1 471**
Metalliferous–surface	183	302	238	196	182
Metalliferous–underground	162	216	210	186	173
Metalliferous subtotal	**345**	**518**	**448**	**382**	**355**
Quarries	68	94	71	60	51
All operations	**1 979**	**2 390**	**2 344**	**2 168**	**1 877**

Table 3.13: Number of employees at 30 June, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	26 346	34 516	30 666	27 827	24 220
Coal–underground	6 222	7 592	6 966	6 596	6 290
Coal subtotal	**32 568**	**42 108**	**37 632**	**34 423**	**30 510**
Metalliferous–surface	7 776	8 664	8 394	8 937	7 326
Metalliferous–underground	5 219	6 168	6 599	6 208	5 273
Metalliferous subtotal	**12 995**	**14 832**	**14 993**	**15 145**	**12 599**
Quarries	1 373	1 773	1 522	1 626	1 324
All operations	**46 936**	**58 713**	**54 147**	**51 194**	**44 433**

Table 3.14: Total hours worked (millions), 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Coal–surface	50.3	63.9	66.2	61.4	51.6
Coal–underground	12.0	17.3	18.6	14.3	13.9
Coal subtotal	**62.3**	**81.2**	**84.8**	**75.7**	**65.5**
Metalliferous–surface	18.0	20.1	20.3	19.6	16.8
Metalliferous–underground	10.2	14.2	15.0	13.3	12.9
Metalliferous subtotal	**28.2**	**34.3**	**35.3**	**32.9**	**29.7**
Quarries	2.0	2.2	2.8	2.9	2.5
All operations	**92.5**	**117.7**	**122.9**	**111.5**	**97.7**

4 INCIDENT RATES

Lag performance indicators: incident rates

Photo: DNRM

4. Lag performance indicators: incident rates

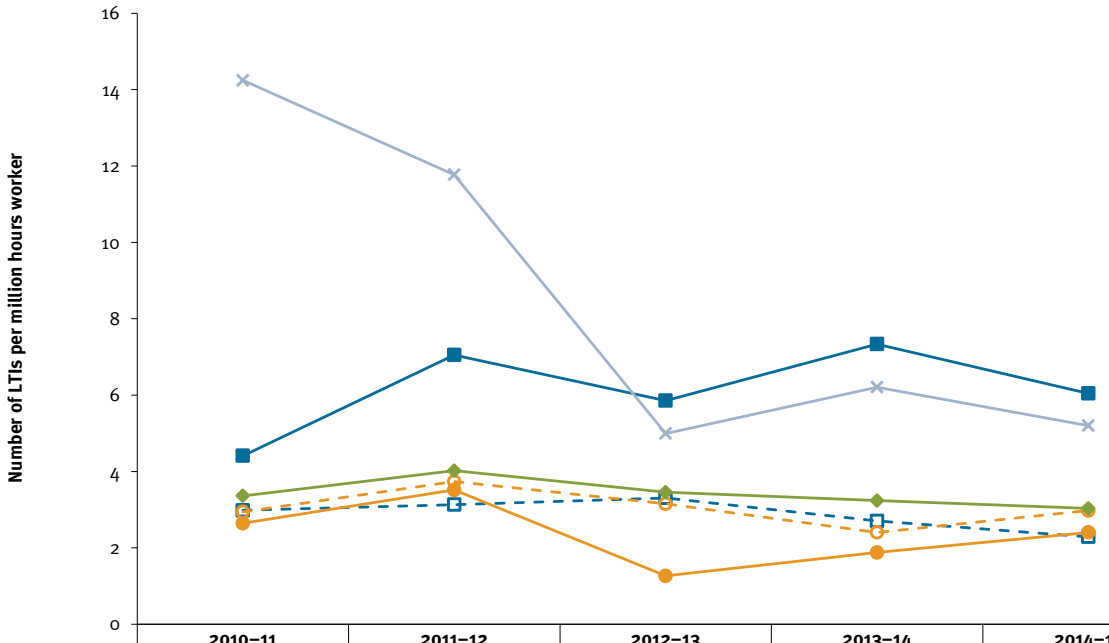
The graphs in this chapter and their accompanying tables show five-year trends across a number of indicators used to assess safety and health performance across the industry. The data presented here has been adjusted either in terms of the number of hours worked or the average days lost per injury. These adjusted values can be used to make comparisons across different sectors.

The performance indicators plotted are:

- Figure 4.1: Lost time injury frequency rate, 2010–15
- Figure 4.2: Lost time injury severity rate (days away from work only), 2010–15
- Figure 4.3: Lost time injury duration rate (days away from work only), 2010–15
- Figure 4.4: Lost time injury severity rate (days away from work and on alternative duties), 2010–15
- Figure 4.5: Lost time injury duration rate (days away from work and on alternative duties), 2010–15
- Figure 4.6: Disabling injury frequency rate, 2010–15
- Figure 4.7: Disabling injury severity rate, 2010–15
- Figure 4.8: Disabling injury duration rate, 2010–15
- Figure 4.9: Lost time injury and disabling injury frequency rate, 2010–15
- Figure 4.10: Lost time injury and disabling injury severity rate, 2010–15
- Figure 4.11: Lost time injury and disabling injury duration rate, 2010–15
- Figure 4.12: Permanent incapacity frequency rate, 2010–15
- Figure 4.13: Fatality frequency rate, 2010–15
- Figure 4.14: Total recordable injury frequency rate, 2010–15
- Figure 4.15: Fatal injury frequency rates by sector

Figures 4.10 and 4.11 indicate the combined LTI and DI severity rate and duration rate respectively. These performance indicators are the best measure of safety performance and are primarily referred to when assessing industry performance.

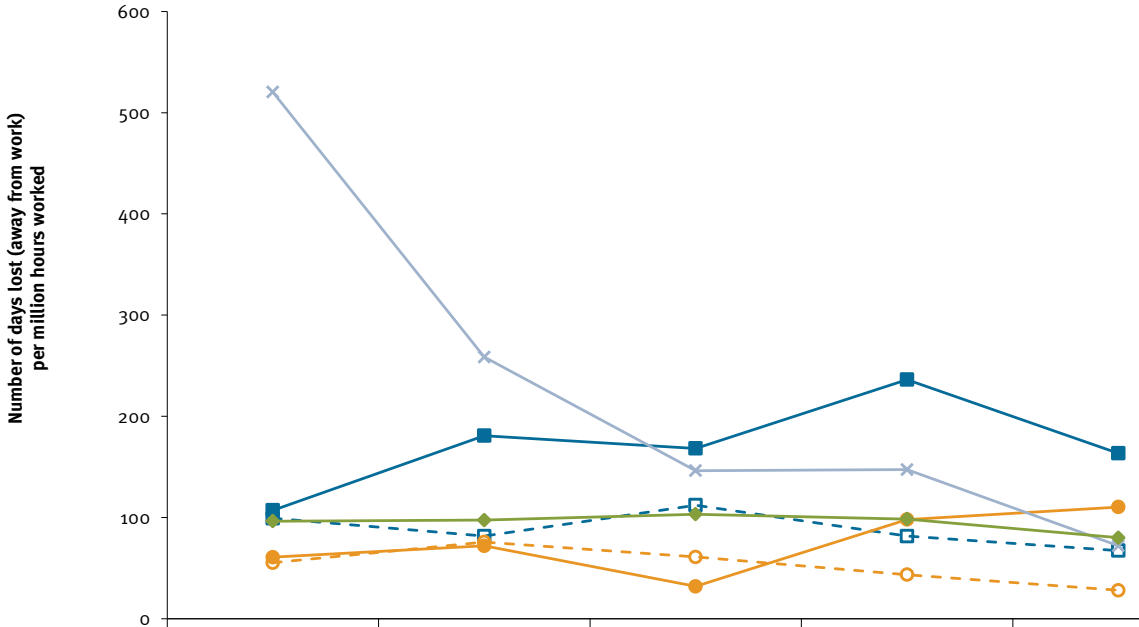
Figure 4.1: Lost time injury frequency rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	3.0	3.1	3.3	2.7	2.3
Coal – underground	4.4	7.1	5.9	7.3	6.0
Metalliferous – surface	2.9	3.7	3.2	2.4	3.0
Metalliferous – underground	2.6	3.5	1.3	1.9	2.4
Quarries	14.2	11.8	5.0	6.2	5.2
All operations	3.4	4.0	3.5	3.2	3.0

Financial year

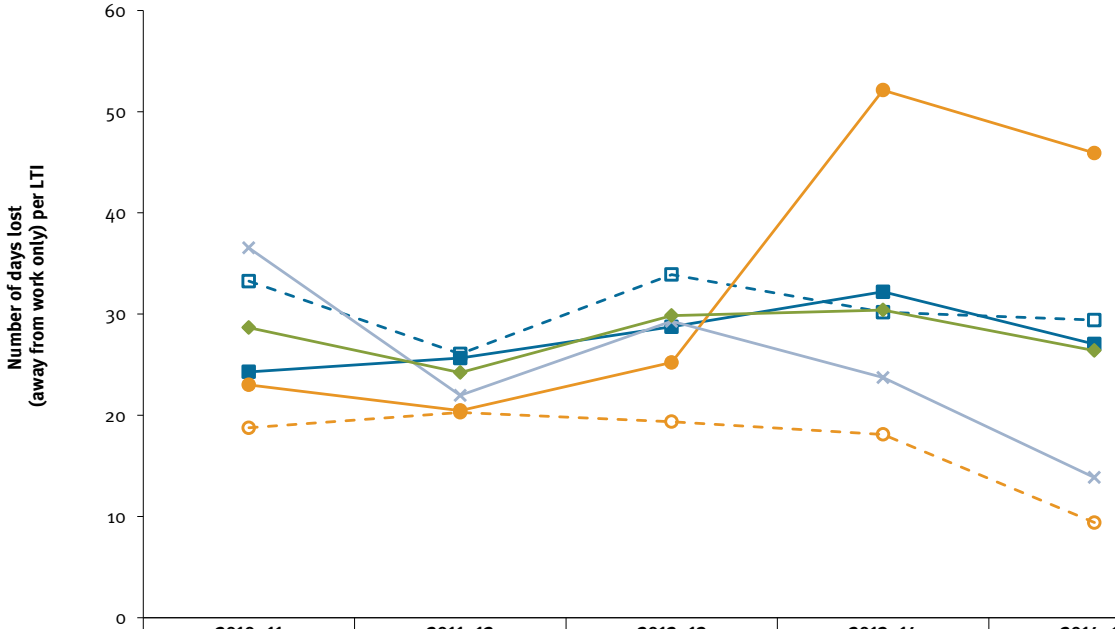
Figure 4.2: Lost time injury severity rate (days away from work only), 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	99	82	112	82	67
Coal – underground	107	181	168	236	163
Metalliferous – surface	55	76	61	44	28
Metalliferous – underground	61	72	32	98	110
Quarries	520	259	146	147	72
All operations	96	97	103	98	80

Financial year

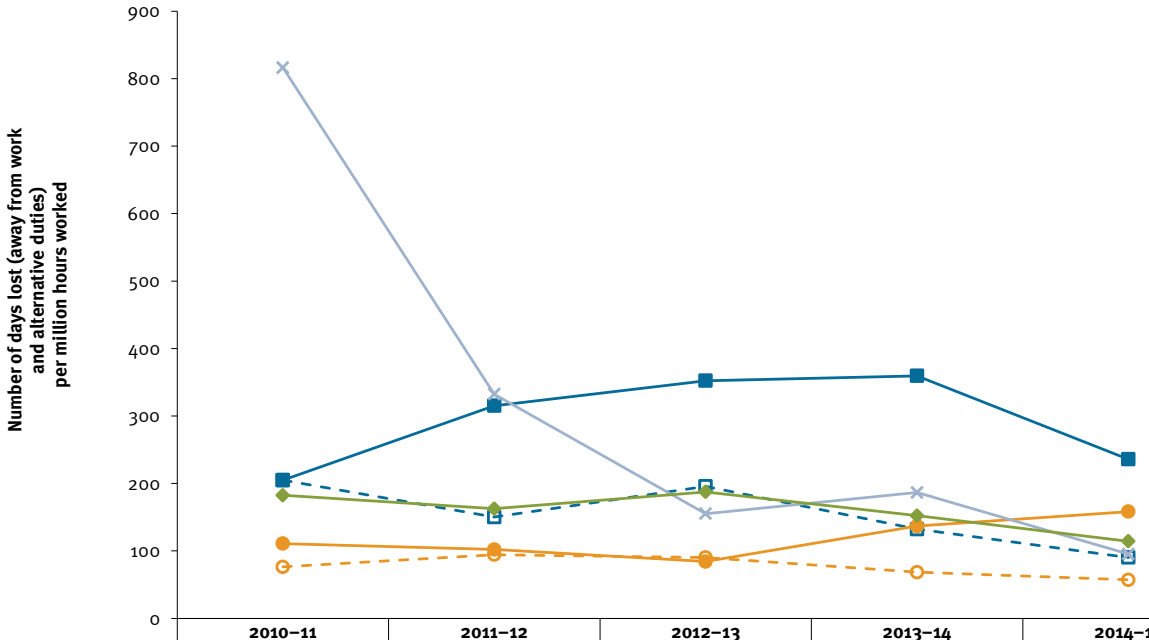
Figure 4.3: Lost time injury duration rate (days away from work only), 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	33.3	26.1	33.9	30.2	29.4
Coal – underground	24.3	25.6	28.7	32.2	27.0
Metalliferous – surface	18.8	20.3	19.4	18.1	9.4
Metalliferous – underground	23.0	20.5	25.2	52.1	45.9
Quarries	36.5	22.0	29.3	23.7	13.8
All operations	28.7	24.2	29.8	30.4	26.4

Financial year

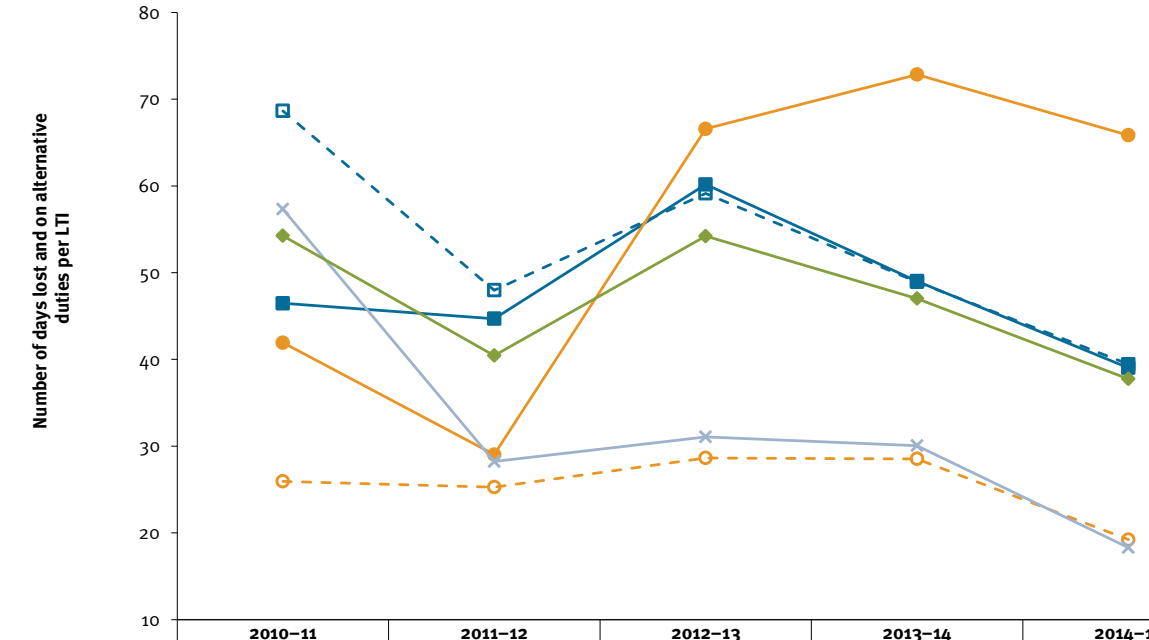
Figure 4.4: Lost time injury severity rate (days away from work and on alternative duties), 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	205	150	196	132	90
Coal – underground	205	315	352	360	236
Metalliferous – surface	76	94	90	69	57
Metalliferous – underground	111	102	84	137	158
Quarries	816	332	155	187	95
All operations	182	163	187	152	114

Financial year

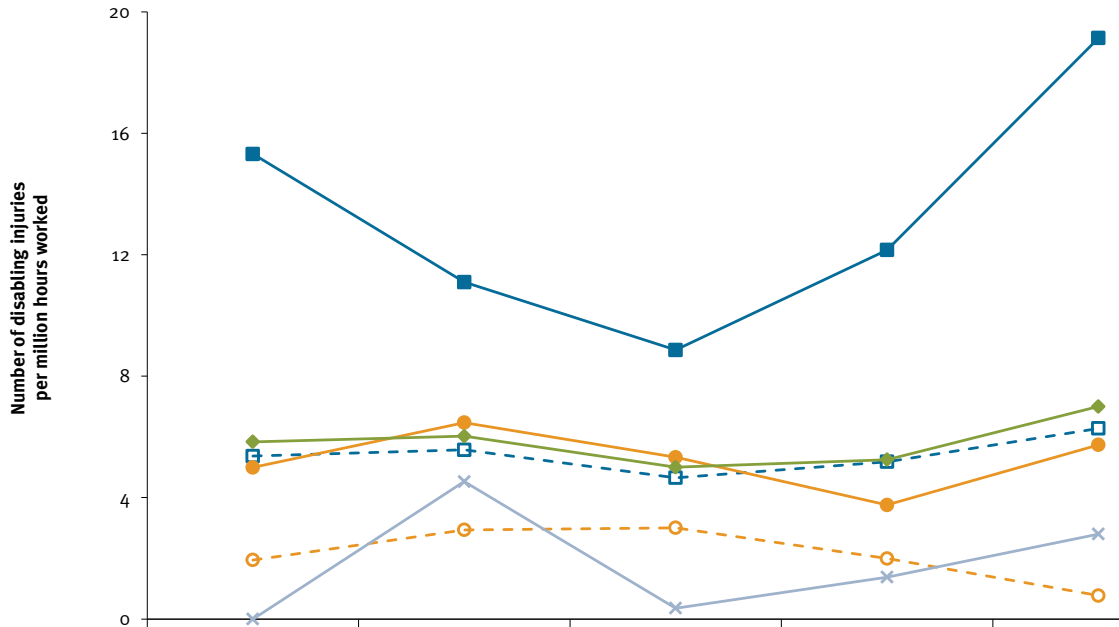
Figure 4.5: Lost time injury duration rate (days away from work and on alternative duties), 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	68.6	48.0	59.1	48.9	39.4
Coal – underground	46.5	44.7	60.2	49.0	39.0
Metalliferous – surface	25.9	25.3	28.6	28.5	19.2
Metalliferous – underground	41.9	29.0	66.6	72.8	65.8
Quarries	57.3	28.2	31.1	30.1	18.3
All operations	54.3	40.4	54.2	47.0	37.7

Financial year

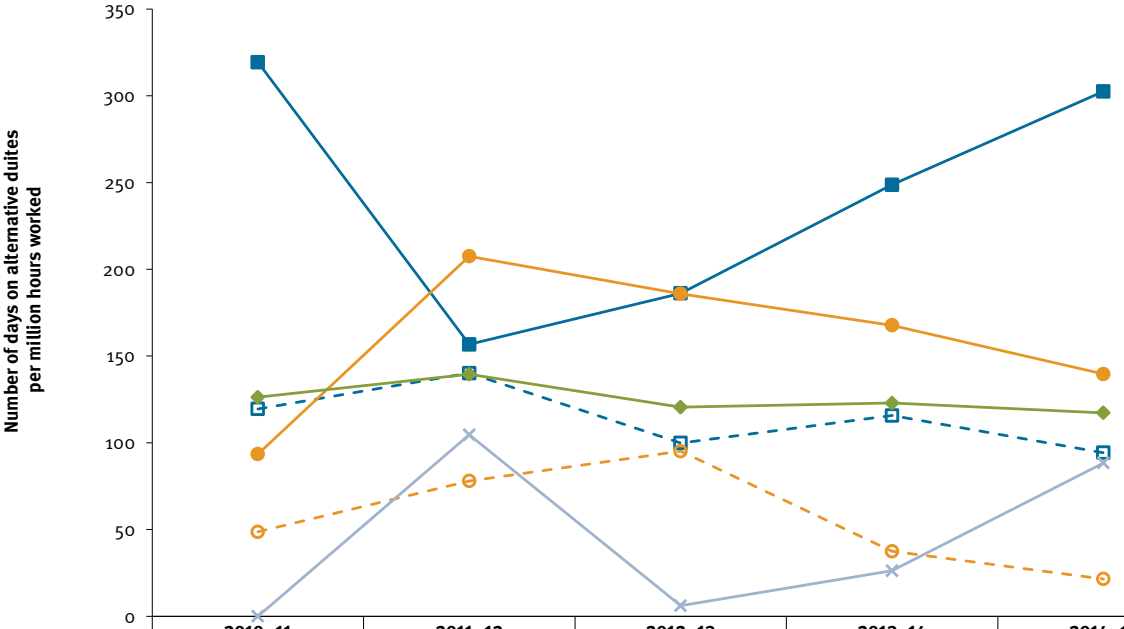
Figure 4.6: Disabling injury frequency rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	5.4	5.6	4.7	5.2	6.3
Coal – underground	15.3	11.1	8.9	12.2	19.1
Metalliferous – surface	1.9	2.9	3.0	2.0	0.8
Metalliferous – underground	5.0	6.5	5.3	3.8	5.7
Quarries	0.0	4.5	0.4	1.4	2.8
All operations	5.8	6.0	5.0	5.2	7.0

Financial year

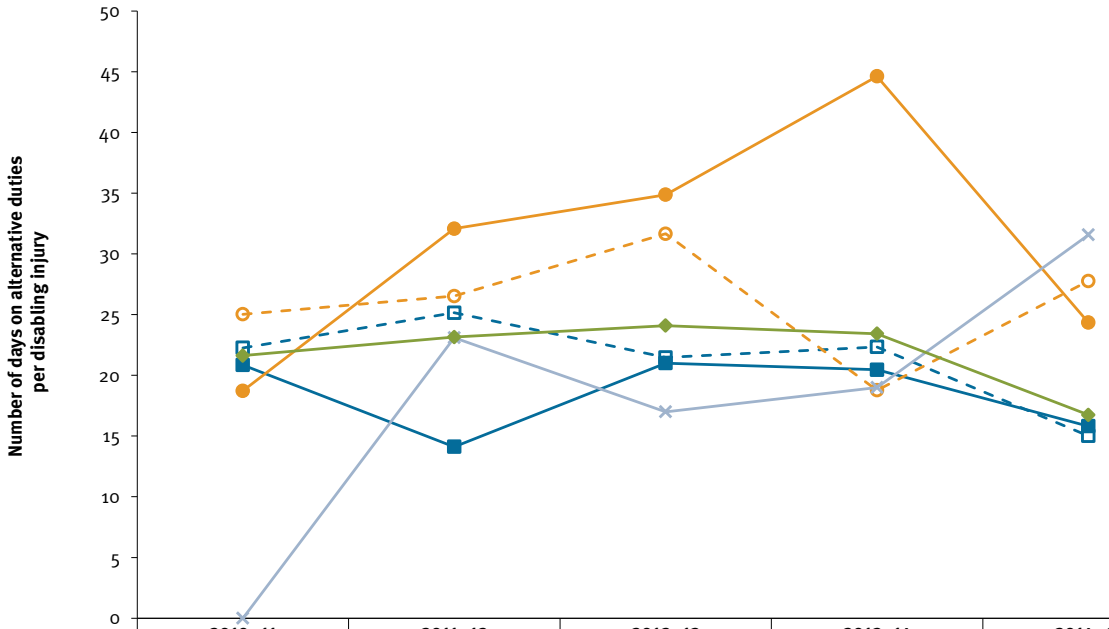
Figure 4.7: Disabling injury severity rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	119	140	100	116	94
Coal – underground	319	157	186	249	303
Metalliferous – surface	49	78	95	37	21
Metalliferous – underground	93	208	186	168	140
Quarries	0	105	6	26	88
All operations	126	139	121	123	117

Financial year

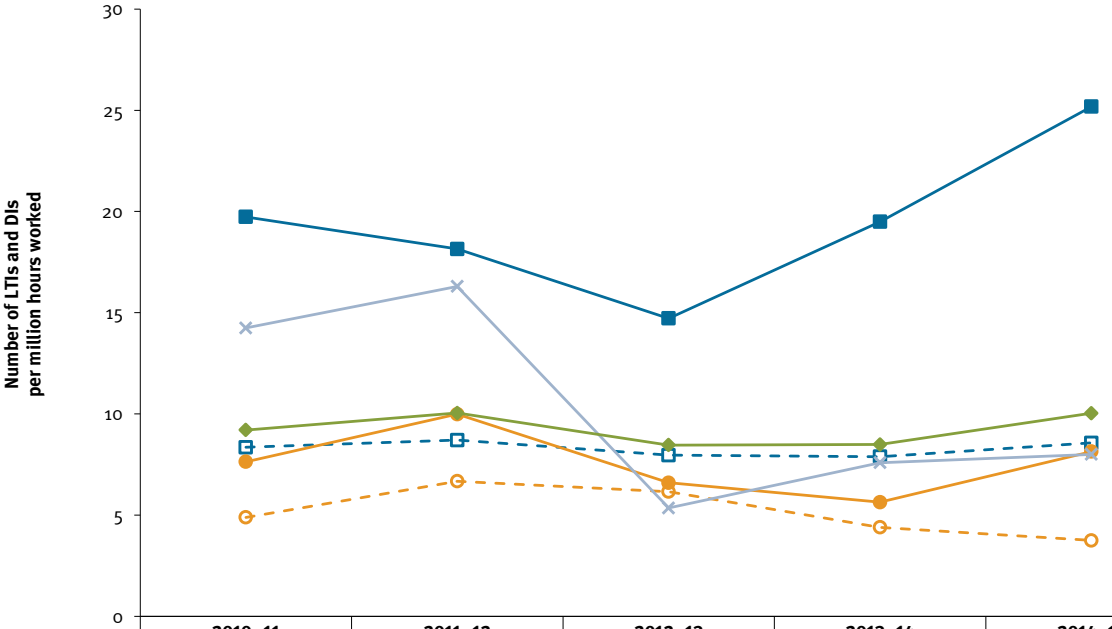
Figure 4.8: Disabling injury duration rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	22.3	25.2	21.5	22.3	15.0
Coal – underground	20.8	14.1	21.0	20.5	15.8
Metalliferous – surface	25.0	26.5	31.7	18.8	27.8
Metalliferous – underground	18.7	32.1	34.9	44.6	24.3
Quarries	0.0	23.1	17.0	19.0	31.6
All operations	21.6	23.1	24.1	23.4	16.7

Financial year

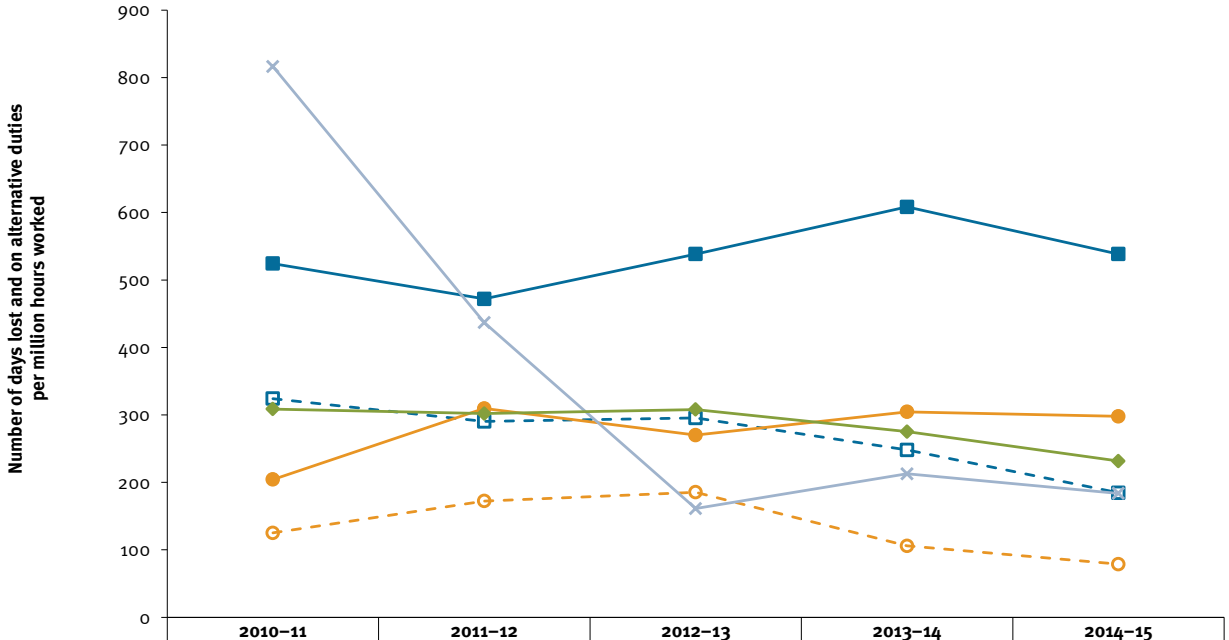
Figure 4.9: Lost time injury and disabling injury frequency rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	8.3	8.7	8.0	7.9	8.6
Coal – underground	19.7	18.1	14.7	19.5	25.2
Metalliferous – surface	4.9	6.7	6.2	4.4	3.8
Metalliferous – underground	7.6	10.0	6.6	5.6	8.1
Quarries	14.2	16.3	5.3	7.6	8.0
All operations	9.2	10.0	8.5	8.5	10.0

Financial year

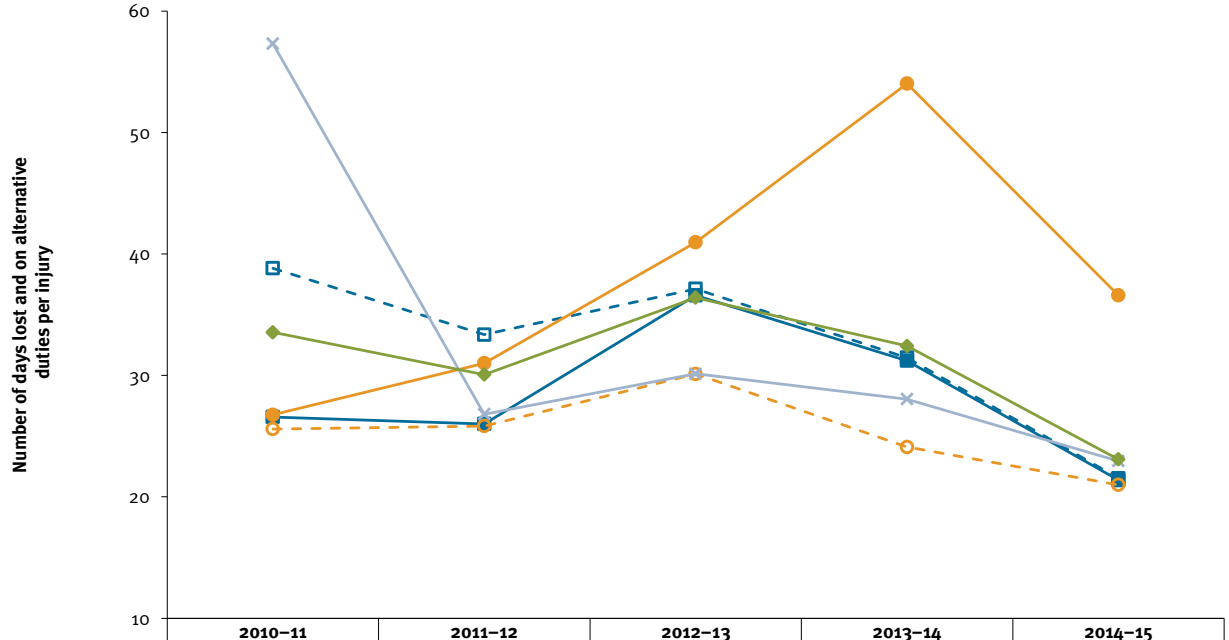
Figure 4.10: Lost time injury and disabling injury severity rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	324	290	296	248	184
Coal – underground	524	472	538	608	538
Metalliferous – surface	125	172	185	106	79
Metalliferous – underground	204	310	270	305	298
Quarries	816	437	161	213	184
All operations	309	302	308	275	232

Financial year

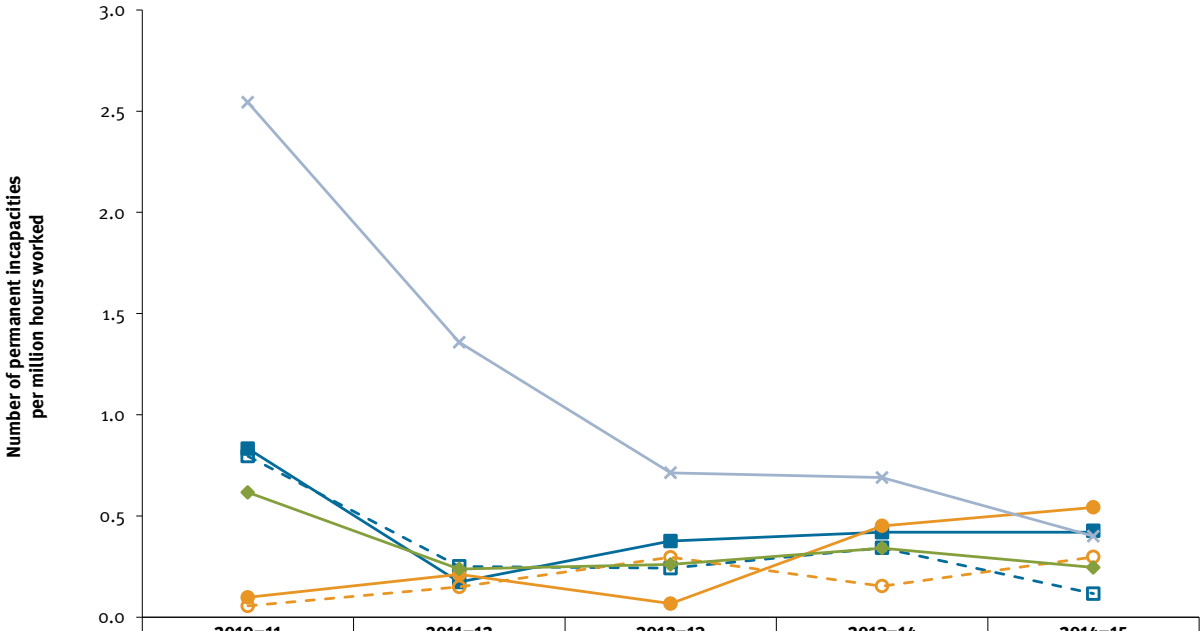
Figure 4.11: Lost time injury and disabling injury duration rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	38.8	33.4	37.1	31.5	21.5
Coal – underground	26.6	26.0	36.6	31.2	21.4
Metalliferous – surface	25.6	25.8	30.1	24.1	21.0
Metalliferous – underground	26.8	31.0	41.0	54.0	36.6
Quarries	57.3	26.8	30.1	28.0	23.0
All operations	33.5	30.1	36.4	32.4	23.1

Financial year

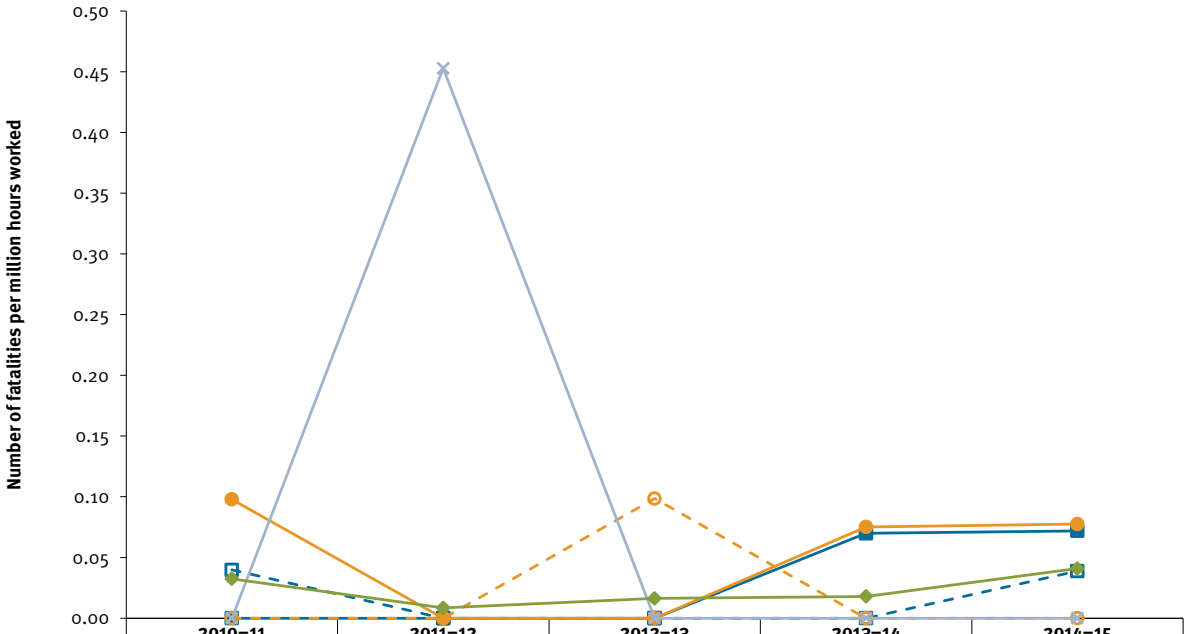
Figure 4.12: Permanent incapacity frequency rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	0.80	0.25	0.24	0.34	0.12
Coal – underground	0.83	0.17	0.38	0.42	0.43
Metalliferous – surface	0.06	0.15	0.30	0.15	0.30
Metalliferous – underground	0.10	0.21	0.07	0.45	0.54
Quarries	2.54	1.36	0.71	0.69	0.40
All operations	0.62	0.24	0.26	0.34	0.26

Financial year

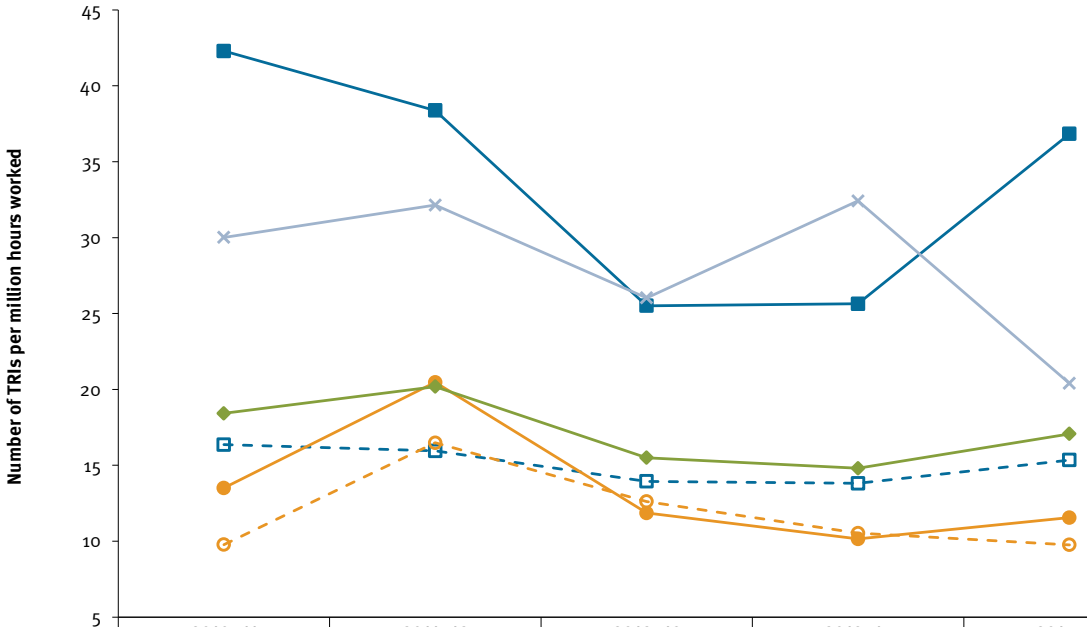
Figure 4.13: Fatality frequency rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	0.04	0.00	0.00	0.00	0.04
Coal – underground	0.00	0.00	0.00	0.07	0.07
Metalliferous – surface	0.00	0.00	0.10	0.00	0.00
Metalliferous – underground	0.10	0.00	0.00	0.08	0.08
Quarries	0.00	0.45	0.00	0.00	0.00
All operations	0.03	0.01	0.02	0.02	0.04

Financial year

Figure 4.14: Total recordable injury frequency rate, 2010–15



	2010–11	2011–12	2012–13	2013–14	2014–15
Coal – surface	16.4	15.9	13.9	13.8	15.3
Coal – underground	42.3	38.4	25.5	25.6	36.8
Metalliferous – surface	9.8	16.5	12.6	10.5	9.8
Metalliferous – underground	13.5	20.5	11.9	10.1	11.6
Quarries	30.0	32.1	26.0	32.4	20.4
All operations	18.4	20.2	15.5	14.8	17.1

Financial year

Figure 4.15: Fatal injury frequency rates by sector, 2005–15

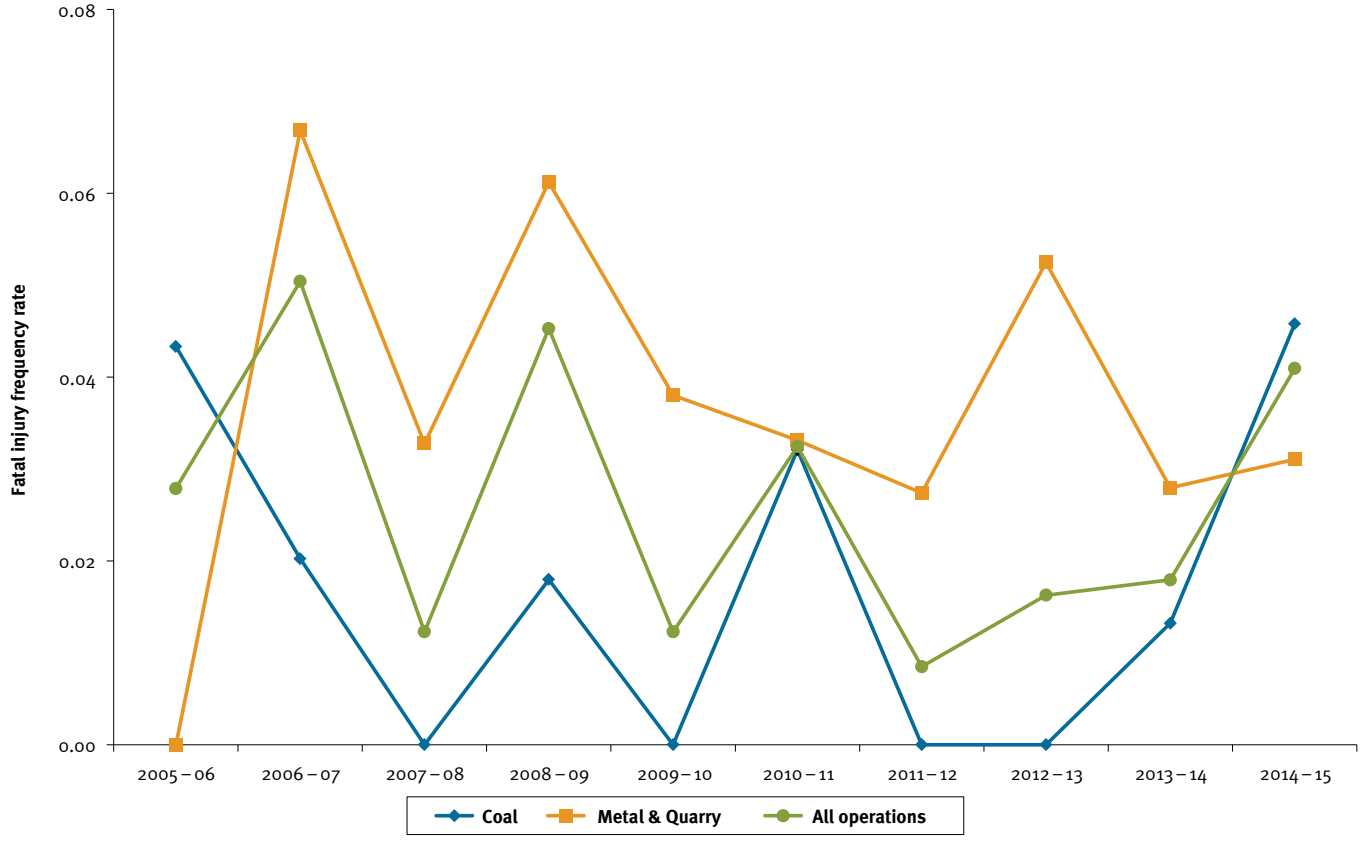


Photo: DNRM

5 OCCURRENCE DATA

Injury occurrence data

Photo: DNRM

5. Injury occurrence data

There were 296 LTIs during 2014–15 and these have been classified and illustrated in the following figures:

- Figure 5.1: Body parts injured, 2012–15
- Figure 5.2: Nature of injury, 2012–15
- Figure 5.3: Mechanism of injury, 2012–15
- Figure 5.4: Breakdown agency—equipment, 2012–15
- Figure 5.5: Occurrence class of injuries—activity, 2012–15.

Significant results from this classification are summarised below:

- hand and back injuries account for over 30 per cent of injuries (Figure 5.1)
- fracture (not of vertebral column) account for almost 19 per cent of injuries (Figure 5.2)
- fall/slip/trip on the same level accounts for almost 15 per cent of injuries (Figure 5.3)
- earthmoving equipment was involved in over 13 per cent of injuries (Figure 5.4)
- manual handling of equipment/material accounts for almost 35 per cent of injuries (Figure 5.5).

5.1 Age analysis of injury occurrence data

The breakdown of age across the coal mining sector, based on data collected for the Coal Mine Workers' Health Scheme (CMWHS), is shown in Figure 5.6. Note the average age for 2000–15 was 37 years old. The average days lost of lost time injuries by age group from 2010 to 2015 are shown in Figures 5.7 and 5.8.

Table 5.1 provides a breakdown of LTIs for 2006–15 by age group according to:

- nature of injury
- mechanism of injury
- occurrence class of injury.

The analysis gives an indication of which age group had the highest proportion of a single type of LTI.

Figure 5.1: Body parts injured (all sectors), 2012–15

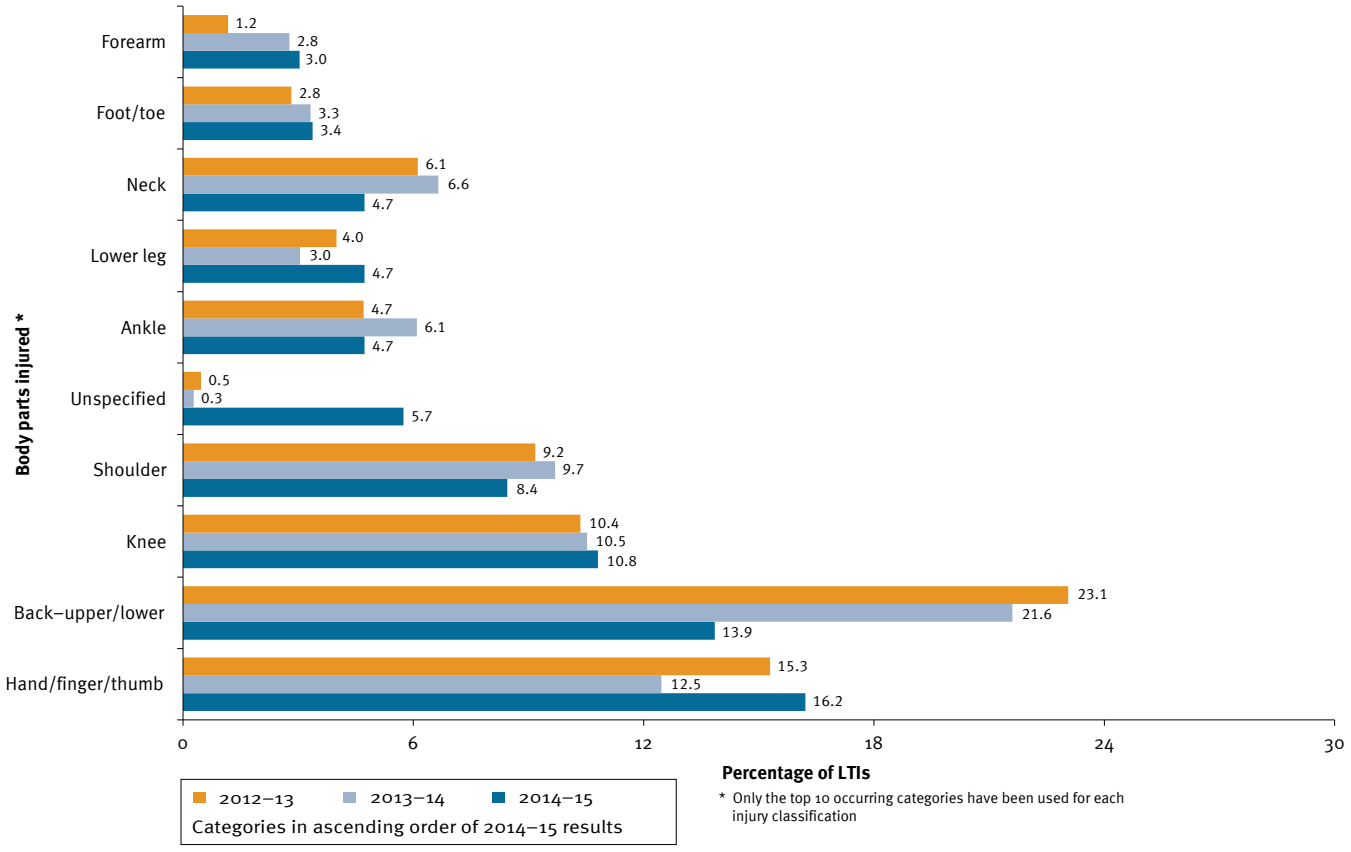


Figure 5.2: Nature of injury (all sectors), 2012–15

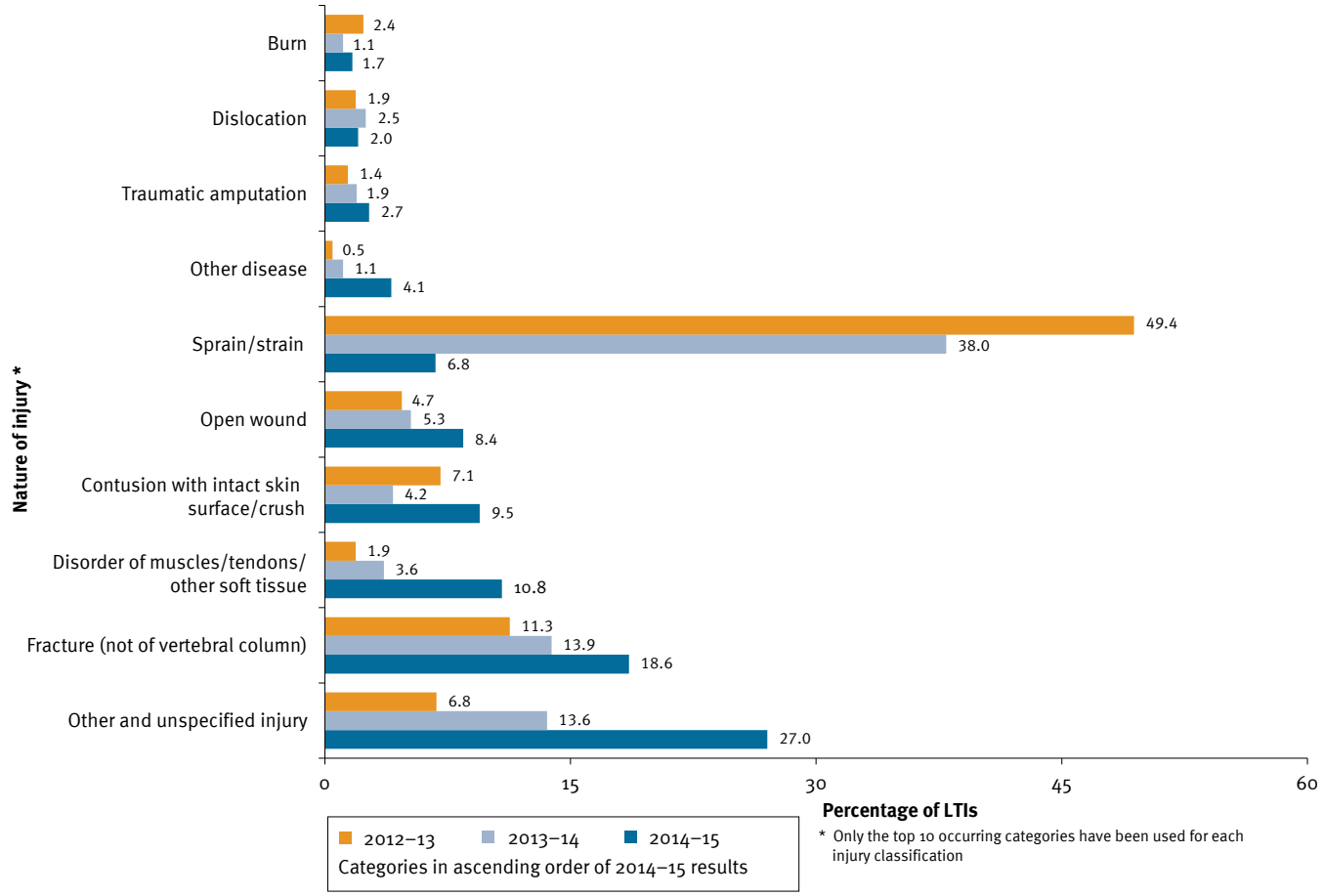


Figure 5.3: Mechanism of injury (all sectors), 2012–15

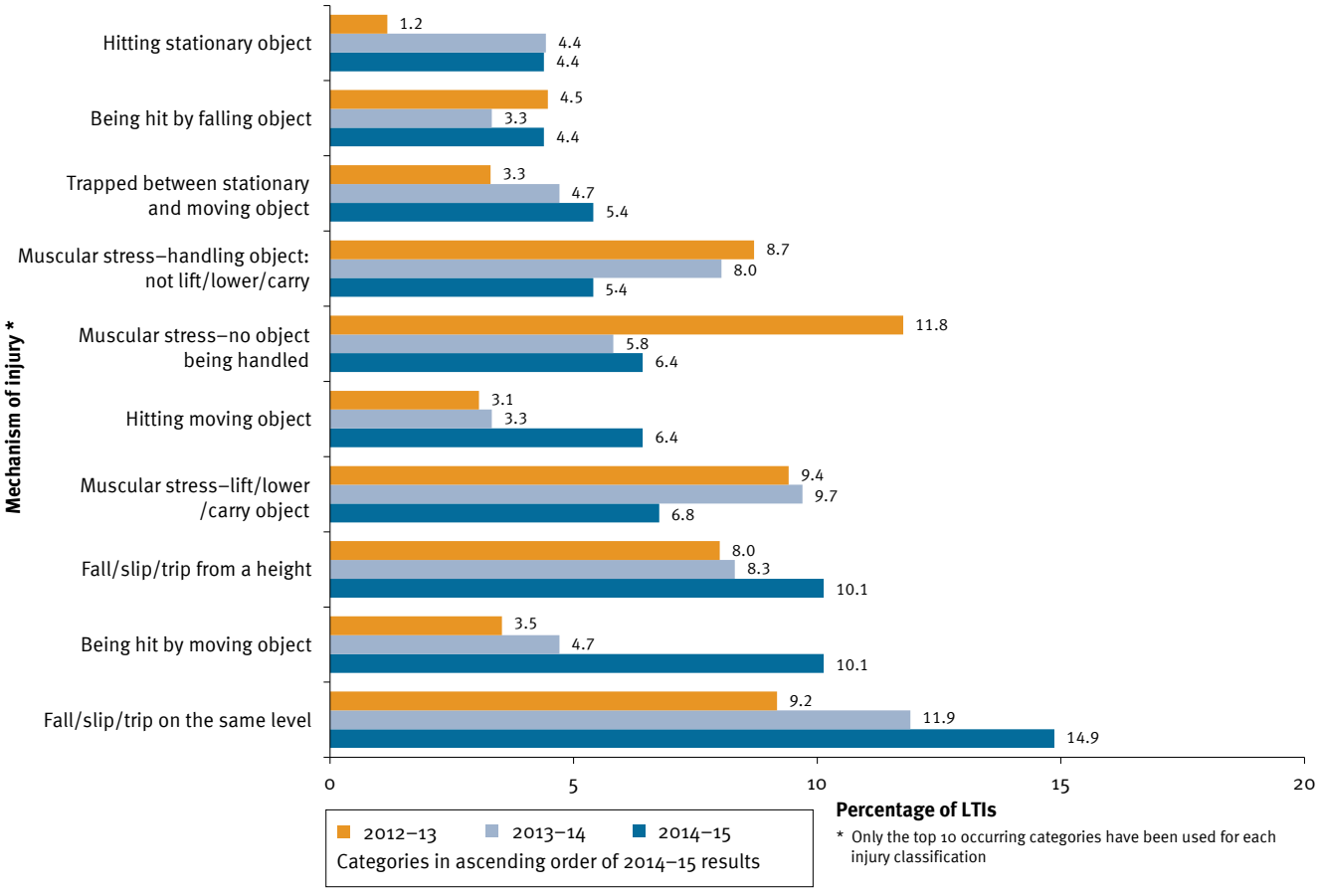


Figure 5.4: Breakdown agency – equipment (all sectors), 2012–15

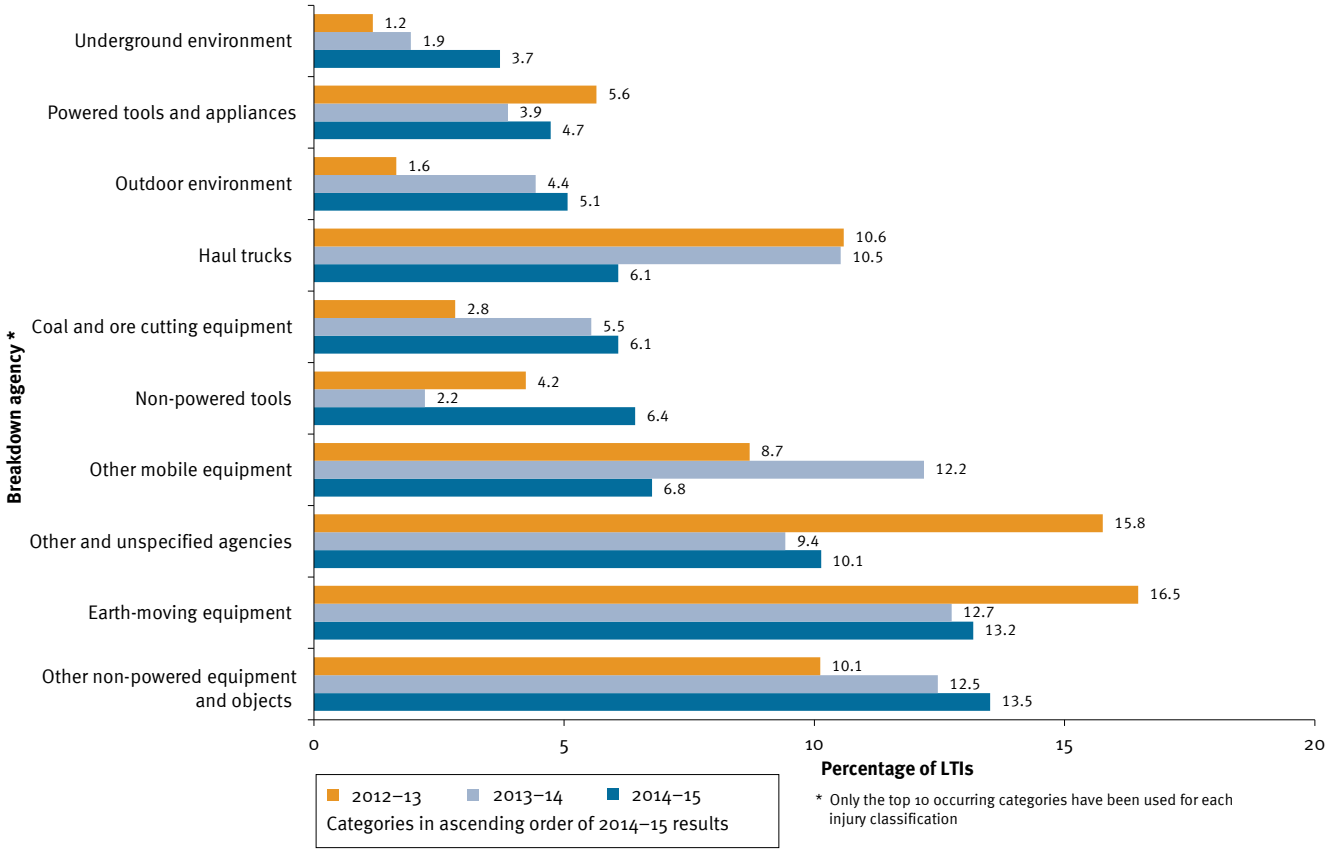


Figure 5.5: Occurrence class of injuries – activity (all sectors), 2012–15

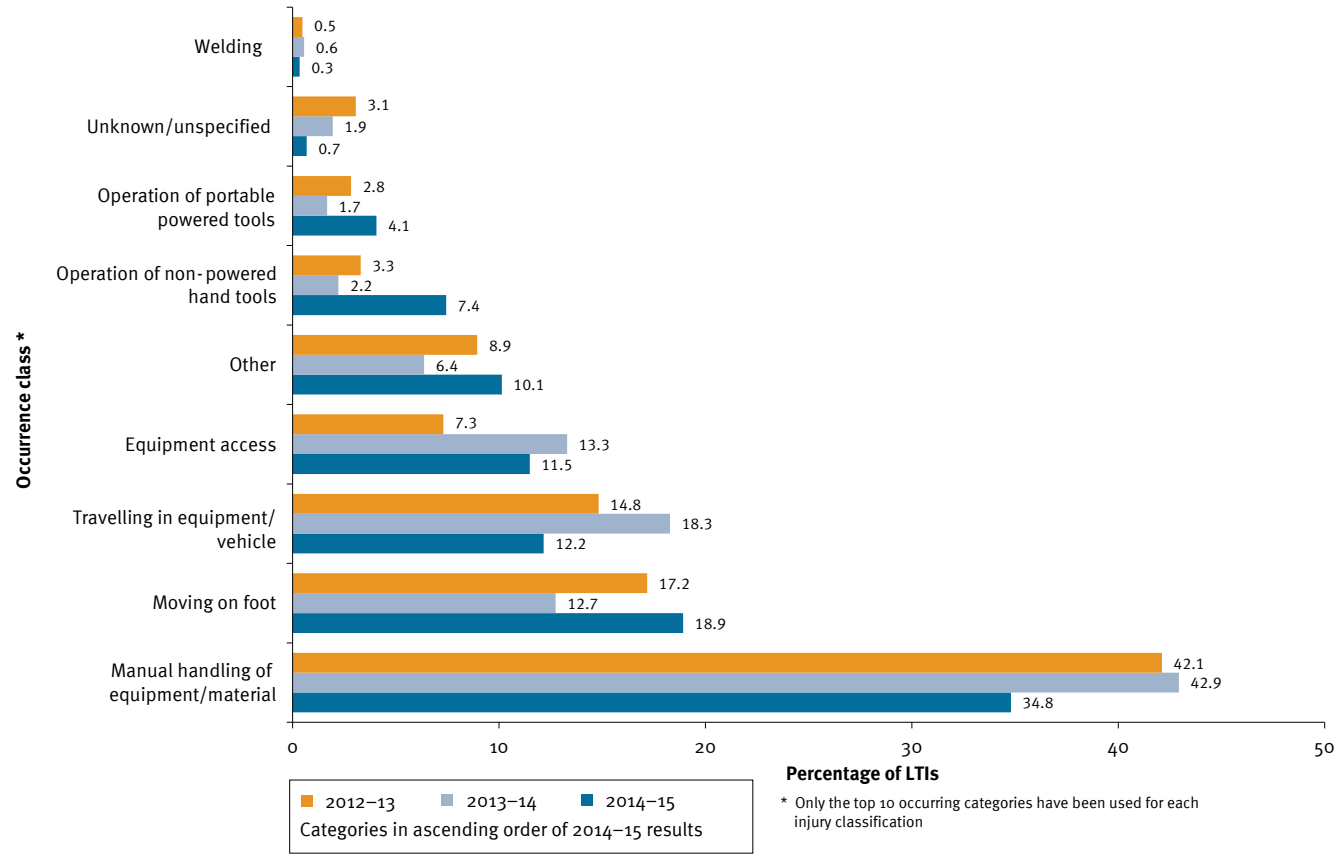
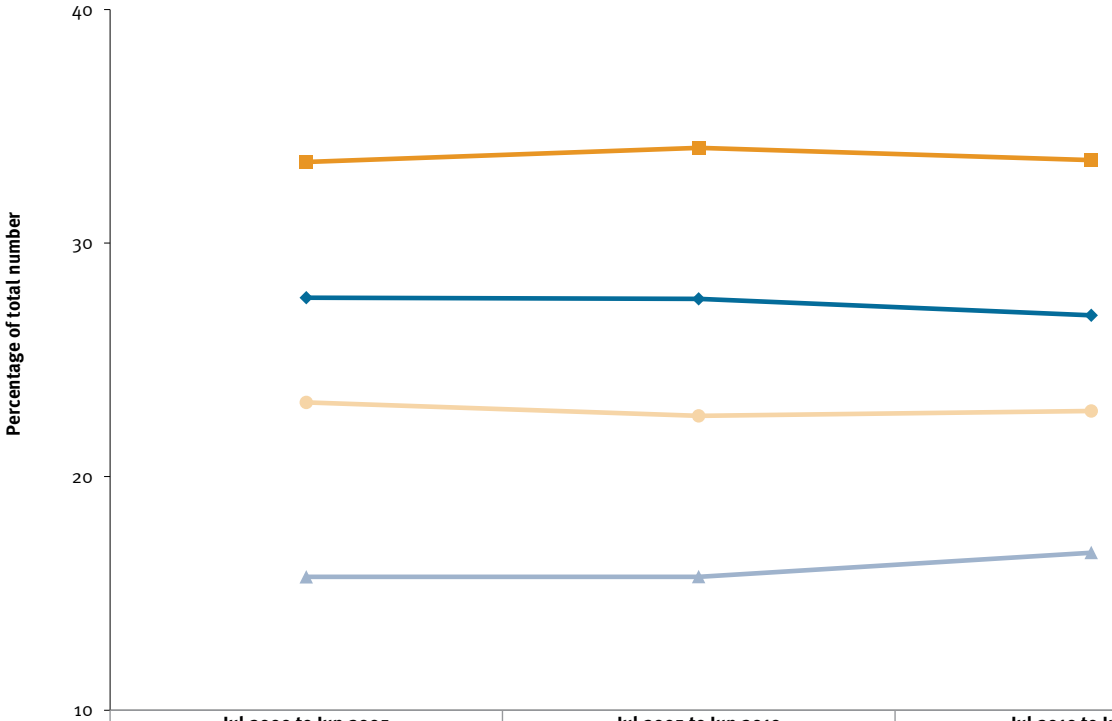


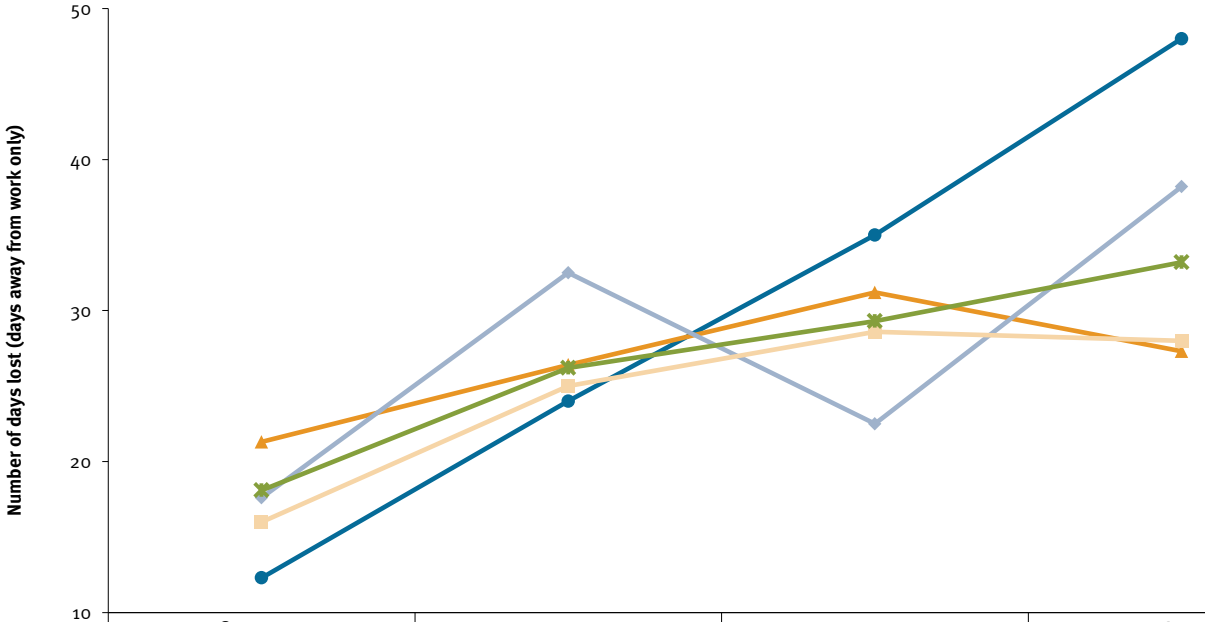
Figure 5.6: Age distribution (coal mines), 2000–15



	Jul 2000 to Jun 2005	Jul 2005 to Jun 2010	Jul 2010 to Jun 2015
18–29 years old	33.5	34.1	33.6
30–39 years old	27.6	27.6	26.9
40–49 years old	23.2	22.6	22.8
50+ years old	15.7	15.7	16.7

Age group

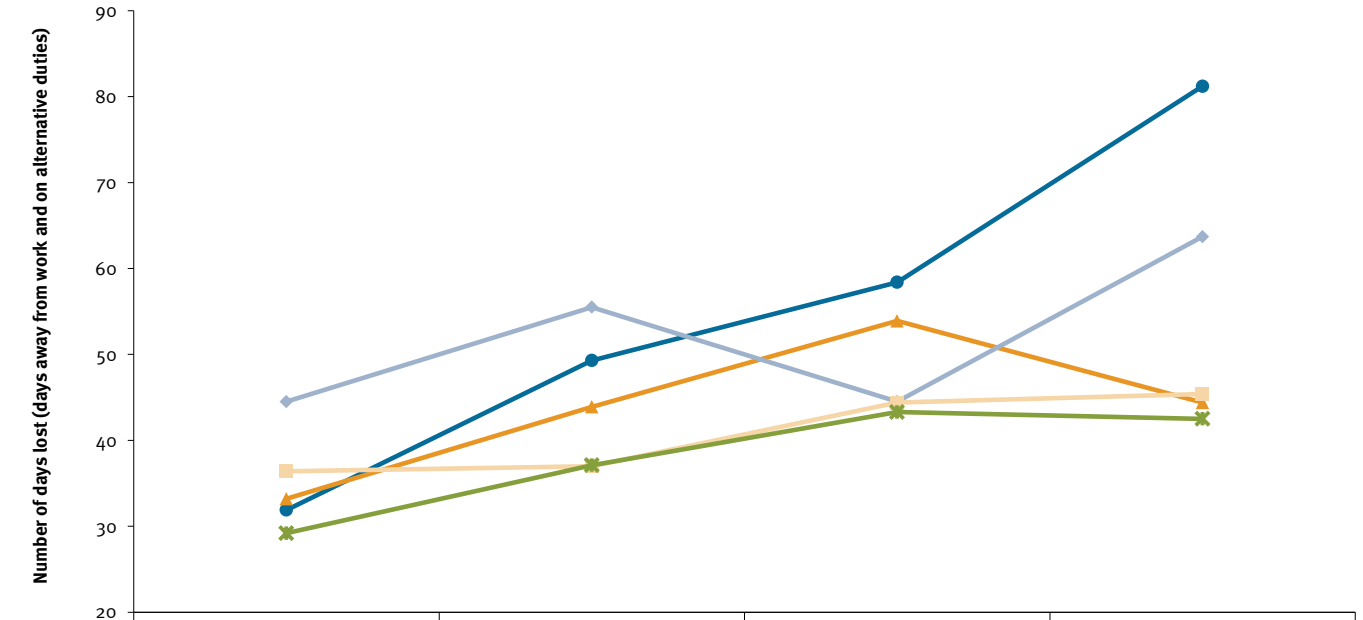
Figure 5.7: Average days lost (days away from work only) of lost time injuries per age group (all sectors), 2010–15



	18–29 years	30–39 years	40–49 years	50+ years
2010–11	12.3	24.0	35.0	48.0
2011–12	21.3	26.4	31.2	27.3
2012–13	17.6	32.5	22.5	38.2
2013–14	16.0	25.0	28.6	28.0
2014–15	18.1	26.2	29.3	33.2

Age group

Figure 5.8: Average days lost (days away from work and on alternative duties) of lost time injuries per age group (all sectors), 2010–15



	18–29 years	30–39 years	40–49 years	50+ years
2010–11	31.9	49.3	58.4	81.2
2011–12	33.2	43.9	53.9	44.4
2012–13	44.5	55.5	44.5	63.7
2013–14	36.4	37.0	44.4	45.4
2014–15	29.2	37.1	43.3	42.5

Age group

Table 5.1: Lost time injury occurrence per age group (all sectors), 2006–15

		18–29 yrs old 23.3% of all LTIs		30–39 yrs old 29.5% of all LTIs		40–49 yrs old 25.0% of all LTIs		50+ yrs old 22.2% of all LTIs	
		% in age group	% of all LTIs	% in age group	% of all LTIs	% in age group	% of all LTIs	% in age group	% of all LTIs
Nature of Injury *	Sprain/strain	33.4	7.8	42.9	12.7	42.3	10.6	44.6	9.9
	Fracture (not of vertebral column)	15.2	3.5	13.2	3.9	14.9	3.7	12.6	2.8
	Other and unspecified injury	8.9	2.1	10.9	3.2	9.6	2.4	11.2	2.5
	Open wound	9.7	2.3	5.0	1.5	6.0	1.5	6.2	1.4
	Contusion with intact skin surface/crush	7.2	1.7	6.8	2.0	6.2	1.6	5.9	1.3
	Disorder of muscles/tendons/other soft tissue	2.1	0.5	2.7	0.8	4.1	1.0	3.4	0.7
	Burn	4.1	1.0	2.7	0.8	1.7	0.4	1.7	0.4
	Foreign body (not superficial skin injury)	3.1	0.7	3.1	0.9	2.0	0.5	0.6	0.1
	Traumatic amputation	3.1	0.7	0.7	0.2	1.9	0.5	2.0	0.4
	Dislocation	2.9	0.7	1.6	0.5	1.5	0.4	0.8	0.2
Mechanism of Injury *	Fall/slip/trip on the same level	12.1	2.8	11.7	3.5	14.1	3.5	14.0	3.1
	Muscular stress – lift/lower/carry object	7.6	1.8	10.9	3.2	9.2	2.3	10.8	2.4
	Fall/slip/trip from a height	6.4	1.5	7.4	2.2	10.3	2.6	12.6	2.8
	Being hit by moving object	10.0	2.3	7.1	2.1	7.6	1.9	7.0	1.6
	Muscular stress – no object being handled	7.1	1.6	7.4	2.2	8.1	2.0	7.2	1.6
	Muscular stress – handling object not lift/lower/carry	4.5	1.1	5.7	1.7	5.9	1.5	7.4	1.6
	Being hit by falling object	7.5	1.7	6.2	1.8	4.5	1.1	5.0	1.1
	Motion of moving vehicle	4.1	1.0	5.9	1.7	5.6	1.4	6.0	1.3
	Trapped between stationary and moving object	7.5	1.7	5.1	1.5	3.7	0.9	3.6	0.8
	Unspecified mechanisms of injury	3.1	0.7	4.8	1.4	5.1	1.3	4.8	1.1
Occurrence class of injury *	Working on equipment	24.7	5.8	19.0	5.6	14.2	3.5	16.3	3.6
	Moving on foot	15.4	3.6	14.3	4.2	16.6	4.1	17.7	3.9
	Travelling in equipment/vehicle	10.7	2.5	13.7	4.0	14.7	3.7	14.4	3.2
	Other manual handling	10.7	2.5	11.8	3.5	13.9	3.5	13.0	2.9
	Other	8.4	2.0	10.6	3.1	8.8	2.2	7.0	1.6
	Other equipment access e.g. moving about	3.3	0.8	4.2	1.2	5.7	1.4	4.5	1.0
	Operation of non powered hand tools	5.9	1.4	3.9	1.2	4.0	1.0	2.9	0.7
	Loading/unloading from vehicles	2.9	0.7	3.6	1.1	3.6	0.9	3.9	0.9
	Descending - ground/floor involved	2.7	0.6	3.2	0.9	3.7	0.9	3.6	0.8
	Transporting manually i.e.. carrying, dragging	3.2	0.7	3.4	1.0	2.6	0.7	3.1	0.7

* Only the top 10 occurring categories have been used for each injury classification

6 INDICATORS

Lead performance indicators

Photo: DNRM

6. Lead performance indicators

Lead indicators or positive performance indicators (PPIs) are measures of pre-emptive actions or initiatives that assist in preventing workplace injury and disease. This is considered a more proactive approach than the use of lag indicators, such as lost time injuries which, by their nature, measure the event or its impact after it has occurred.

Questions in relation to PPIs have been included in the Queensland Mining and Quarrying Industry Census since 2007–08. The questions cover areas of risk management, audits, reviews and HPIs and are designed to collect data on safety and health issues concerning both employees and contractors.

The data are presented in the graphs listed below:

- Figure 6.1: Sites with a register of key site hazards by sector, 2012–15
- Figure 6.2: Sites where key site hazards are identified using a formal system, 2012–15
- Figures 6.3.1–6.3.3: Annual formal risk assessment carried out, 2012–15
- Figures 6.4.1–6.4.3: Workers and contractors routinely involved in conducting formal risk assessments, 2012–15
- Figures 6.5.1–6.5.3: Annual audits (internal and external), 2012–15
- Figure 6.6: Sites without outstanding improvement actions from annual audits by sector, 2012–15
- Figures 6.7.1–6.7.3: Workers involved as auditors in internal audits, 2012–15
- Figure 6.8: Sites with a formal reporting system for capturing and reporting high potential incidents by sector, 2012–15
- Figure 6.9: Improvement actions resulting from investigations into high potential incidents by sector, 2012–15
- Figure 6.10: High potential incidents by sector, 2012–15

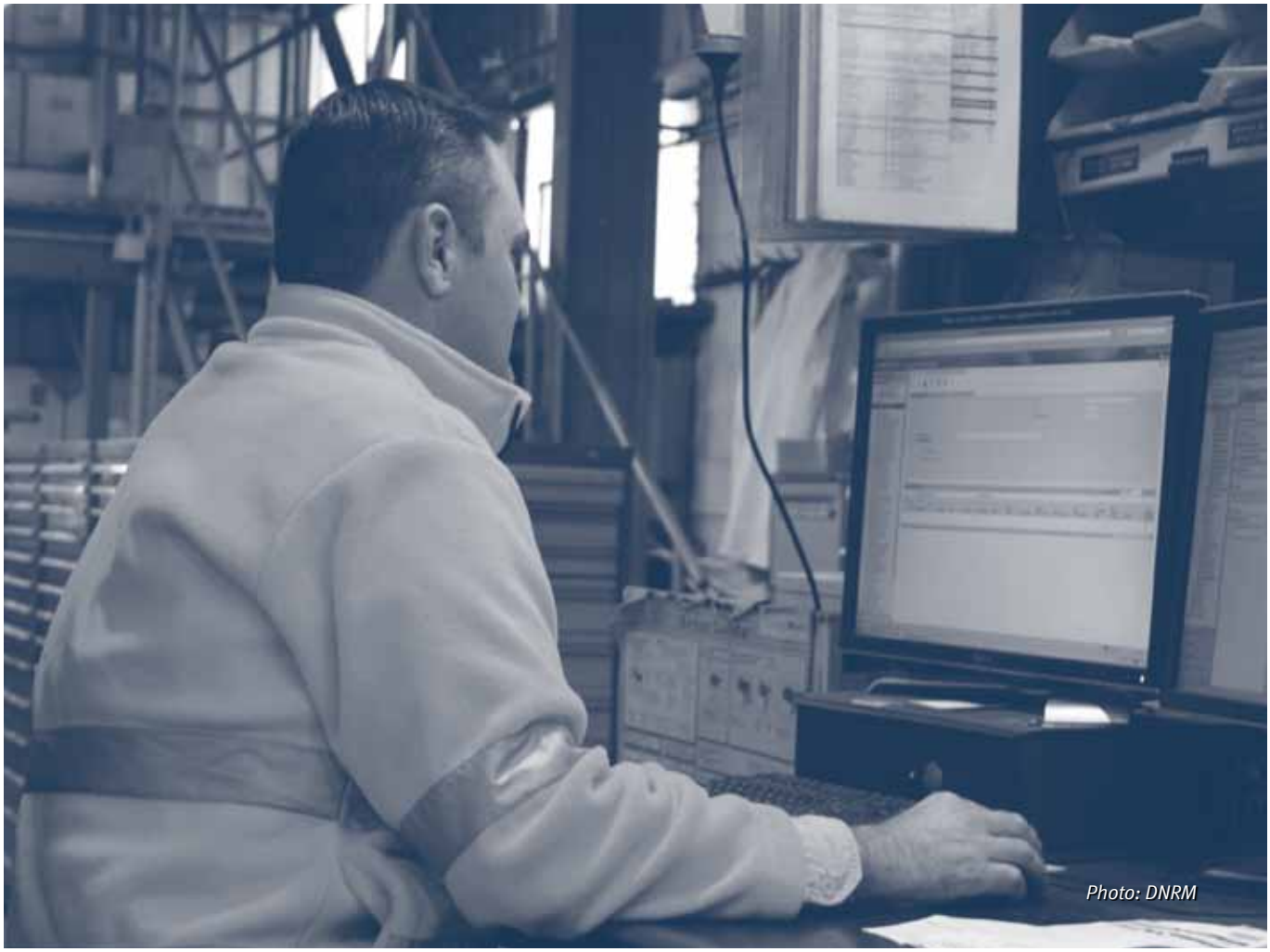


Photo: DNRM

Figure 6.1: Sites with a register of key site hazards by sector, 2012–15

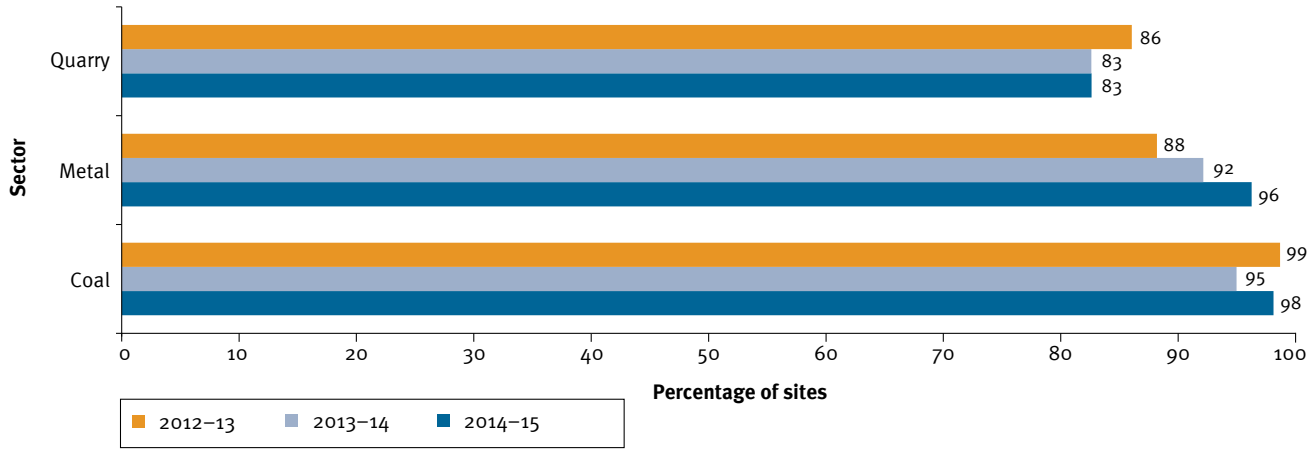


Figure 6.2: Sites where key site hazards are identified using a formal system, 2012–15

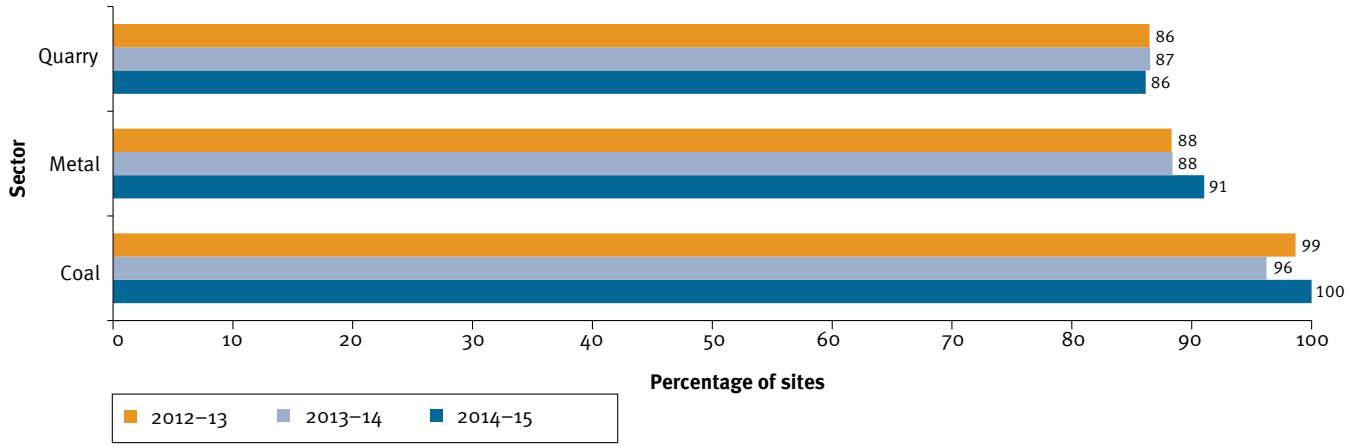


Figure 6.3.1: Annual formal risk assessment carried out (coal mines), 2012–15

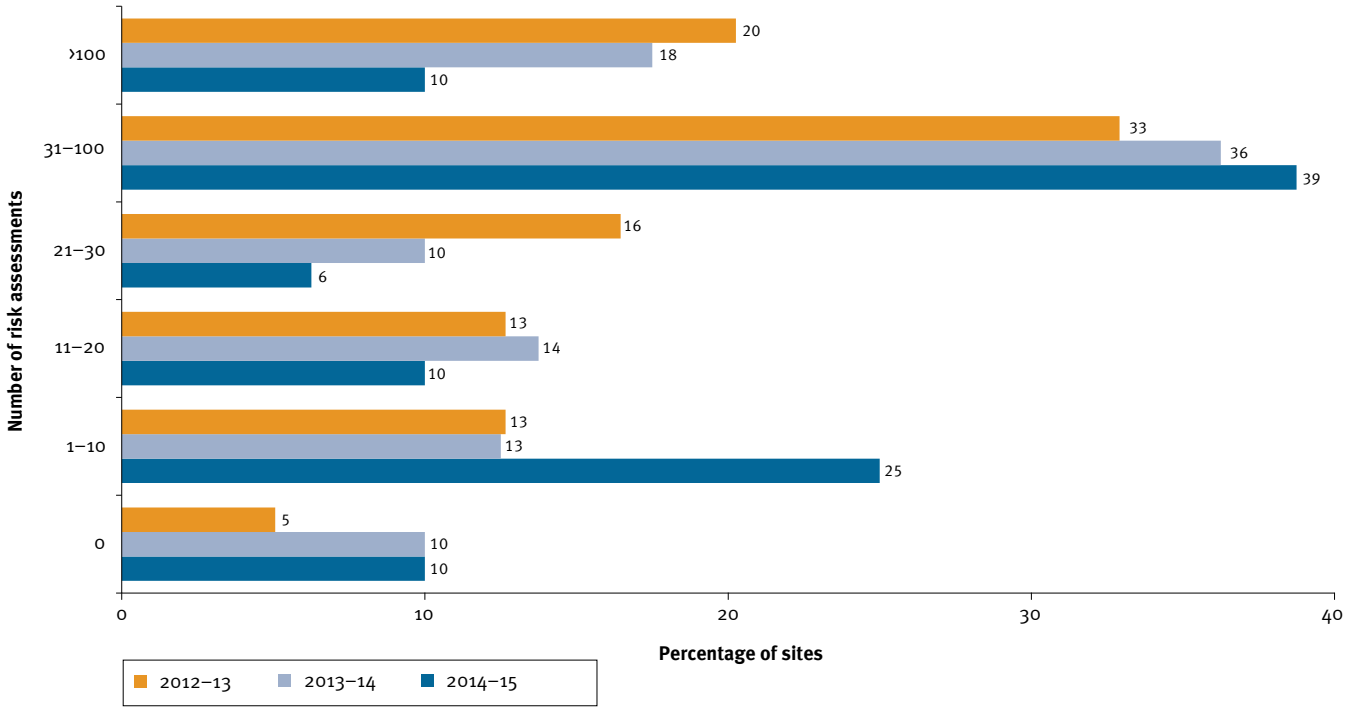


Figure 6.3.2: Annual formal risk assessments carried out (metalliferous mines), 2012–15

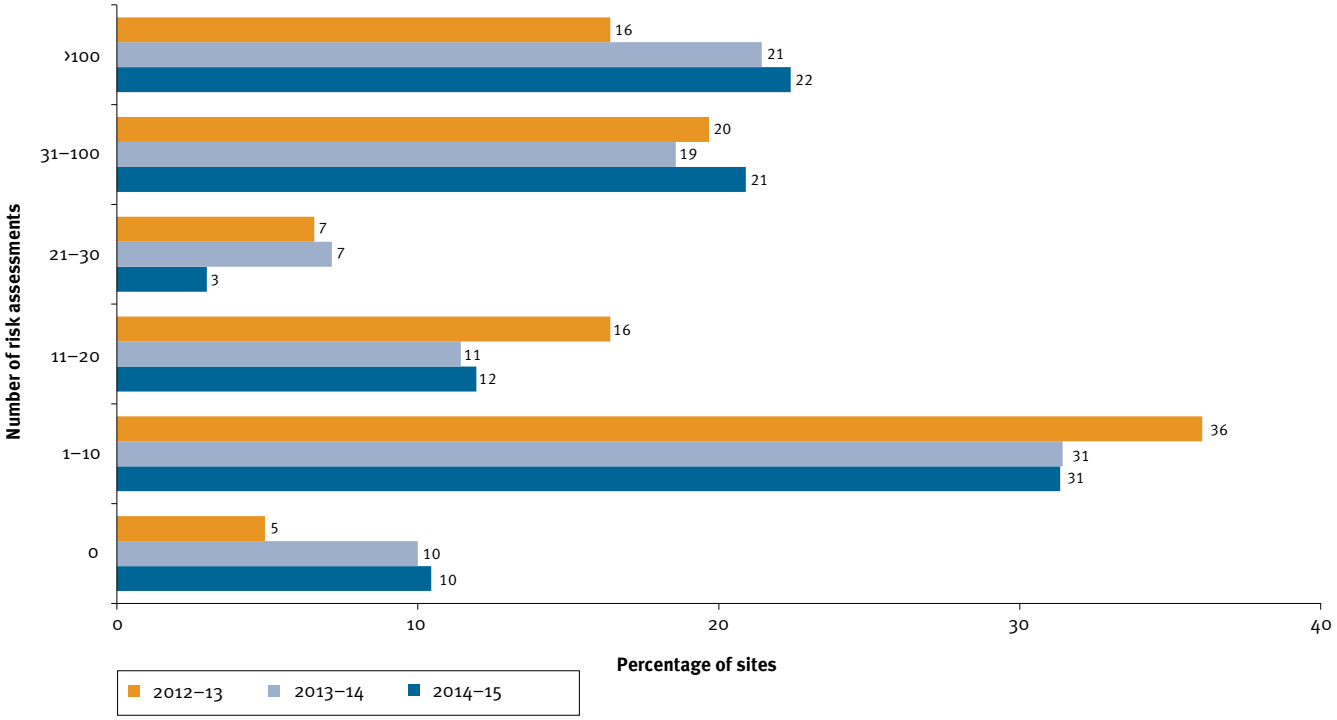


Figure 6.3.3: Annual formal risk assessments carried out (quarries), 2012–15

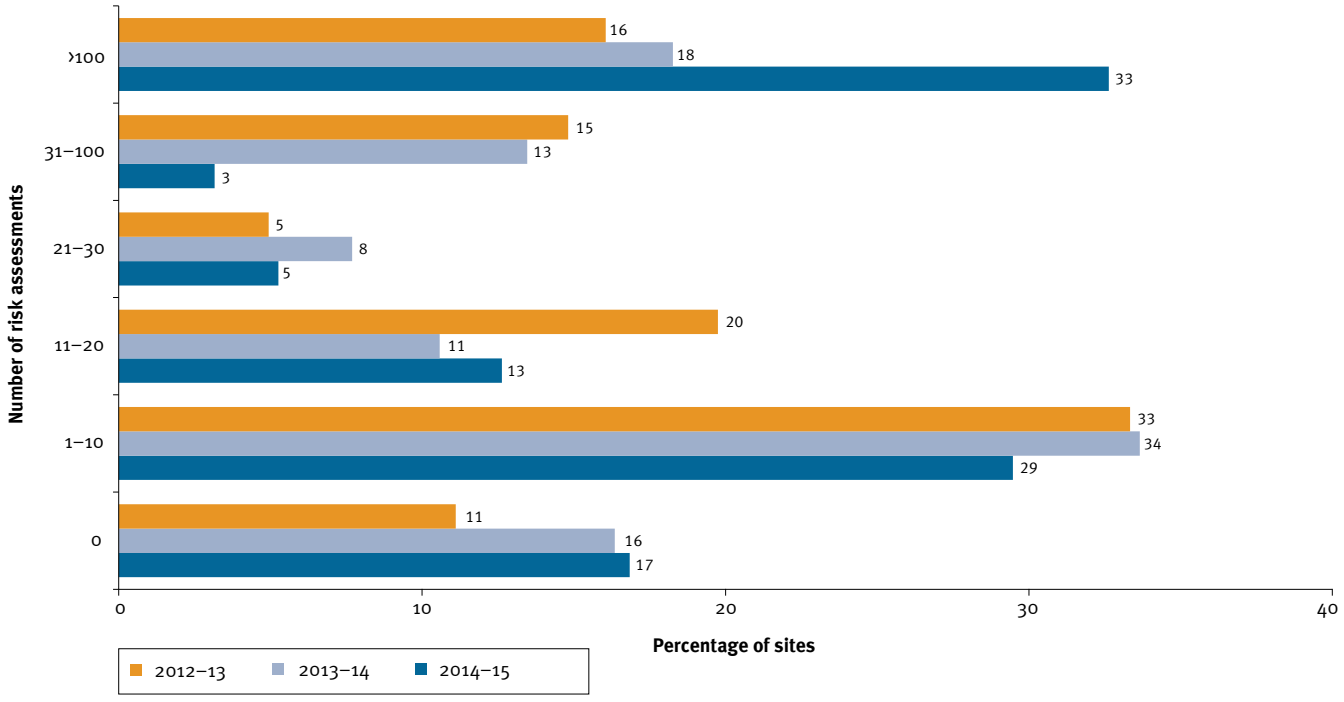


Figure 6.4.1: Workers and contractors routinely involved in conducting formal risk assessments (coal mines), 2012–15

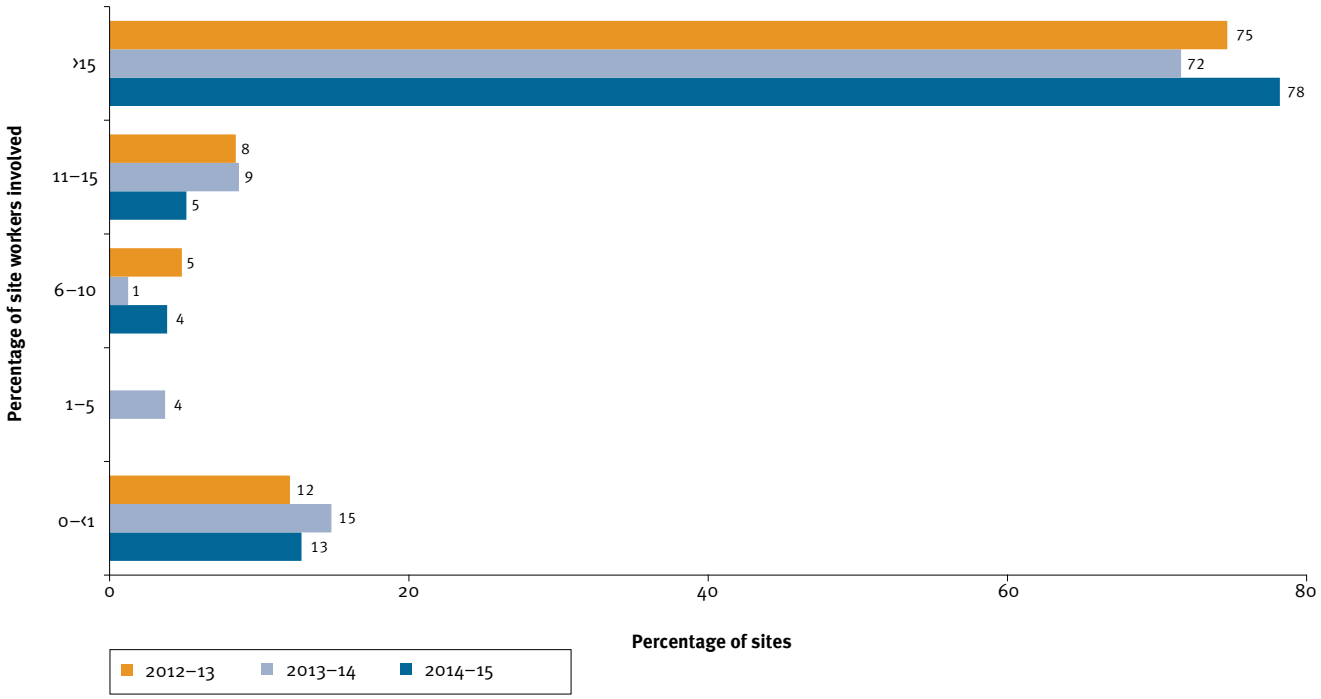


Figure 6.4.2: Workers and contractors routinely involved in conducting formal risk assessments (metalliferous mines), 2012–15

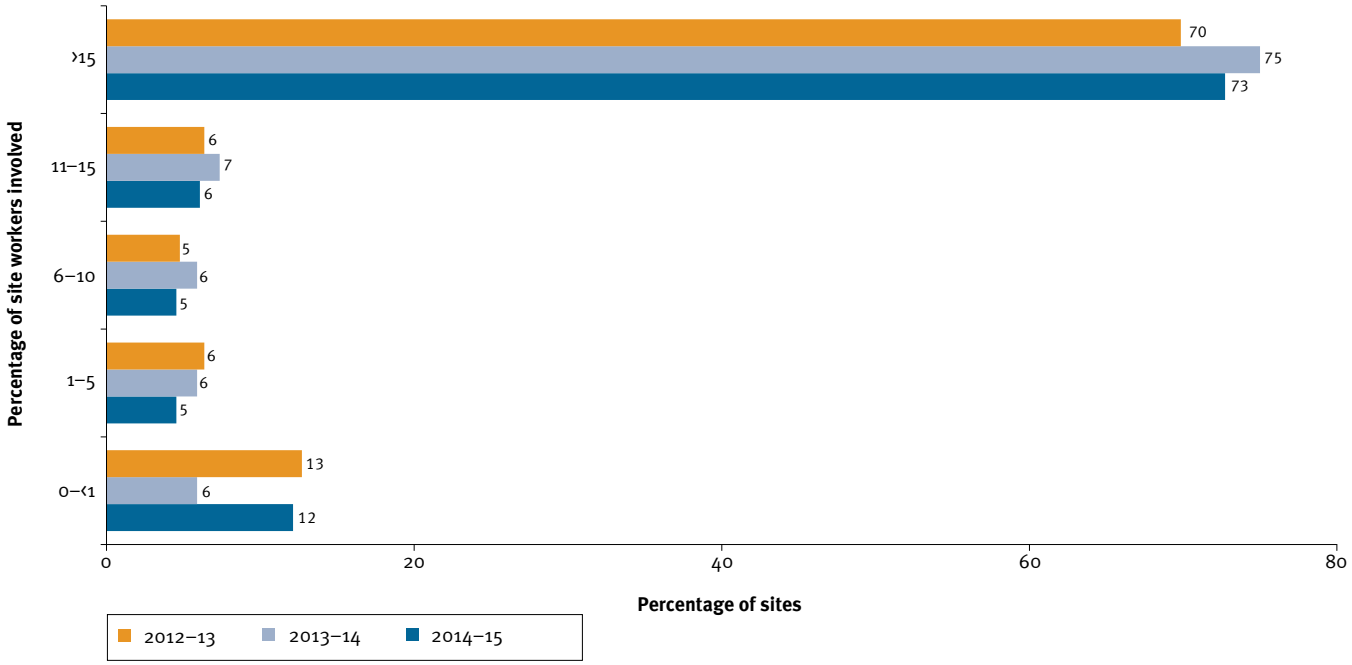


Figure 6.4.3: Workers and contractors routinely involved in conducting formal risk assessments (quarries), 2012–15

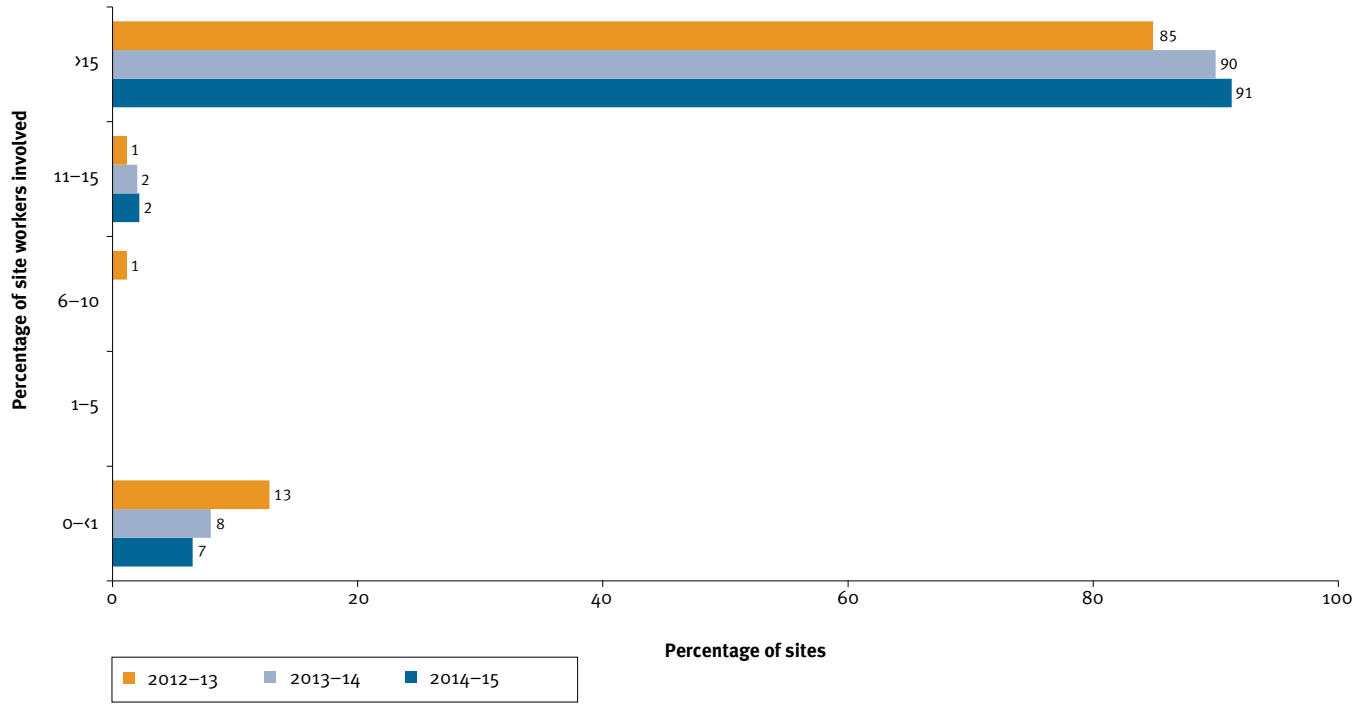
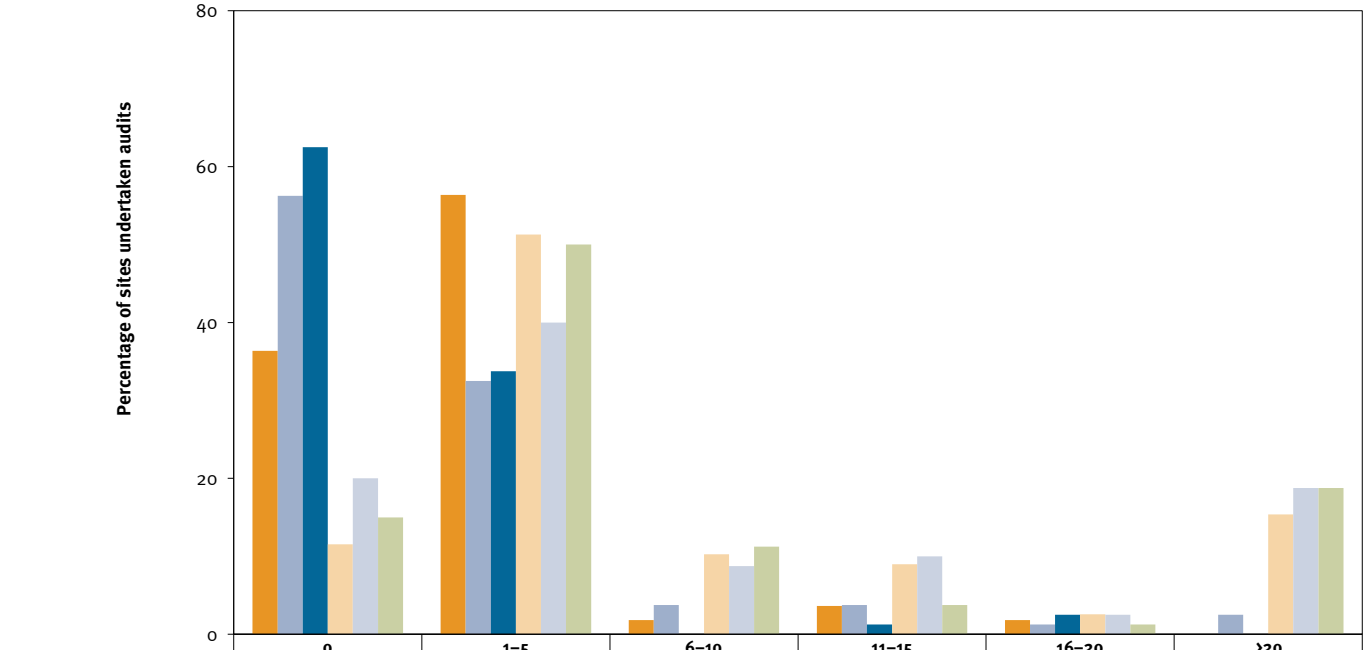
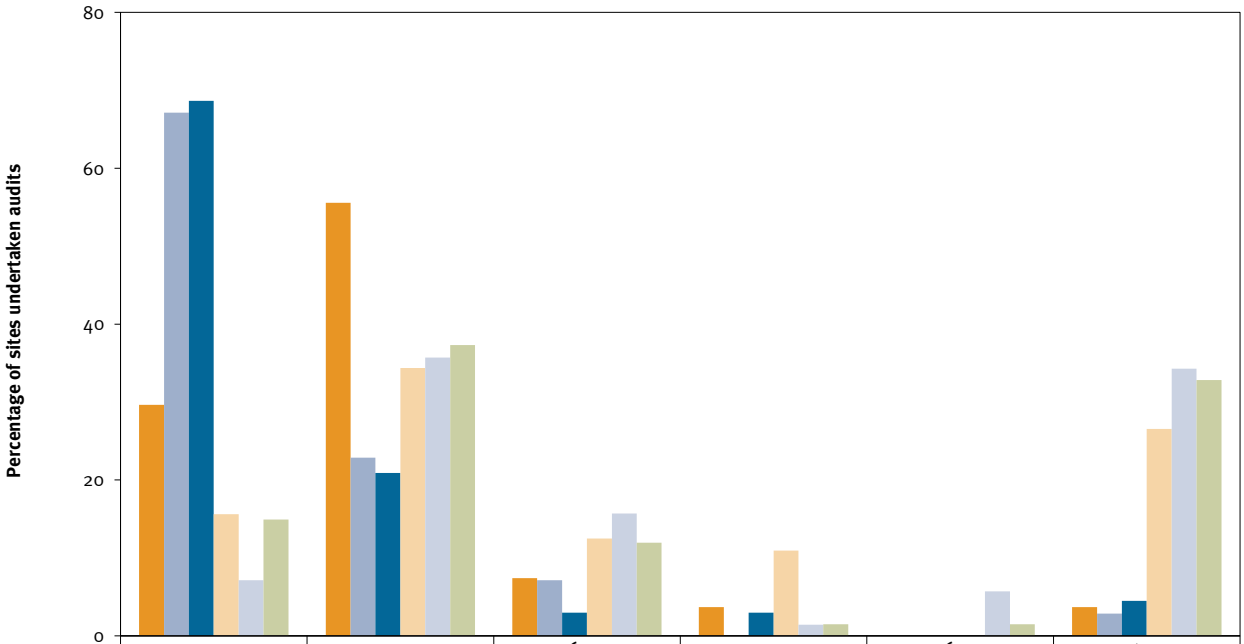


Figure 6.5.1: Annual audits (internal and external) (coal mines), 2012–15



	0	1–5	6–10	11–15	16–20	›20
Coal 2012–13 (Health Audit)	36%	56%	2%	4%	2%	0%
Coal 2013–14 (Health Audit)	56%	33%	4%	4%	1%	3%
Coal 2014–15 (Health Audit)	63%	34%	0%	1%	3%	0%
Coal 2012–13 (Safety Audit)	12%	51%	10%	9%	3%	15%
Coal 2013–14 (Safety Audit)	20%	40%	9%	10%	3%	19%
Coal 2014–15 (Safety Audit)	15%	50%	11%	4%	1%	19%

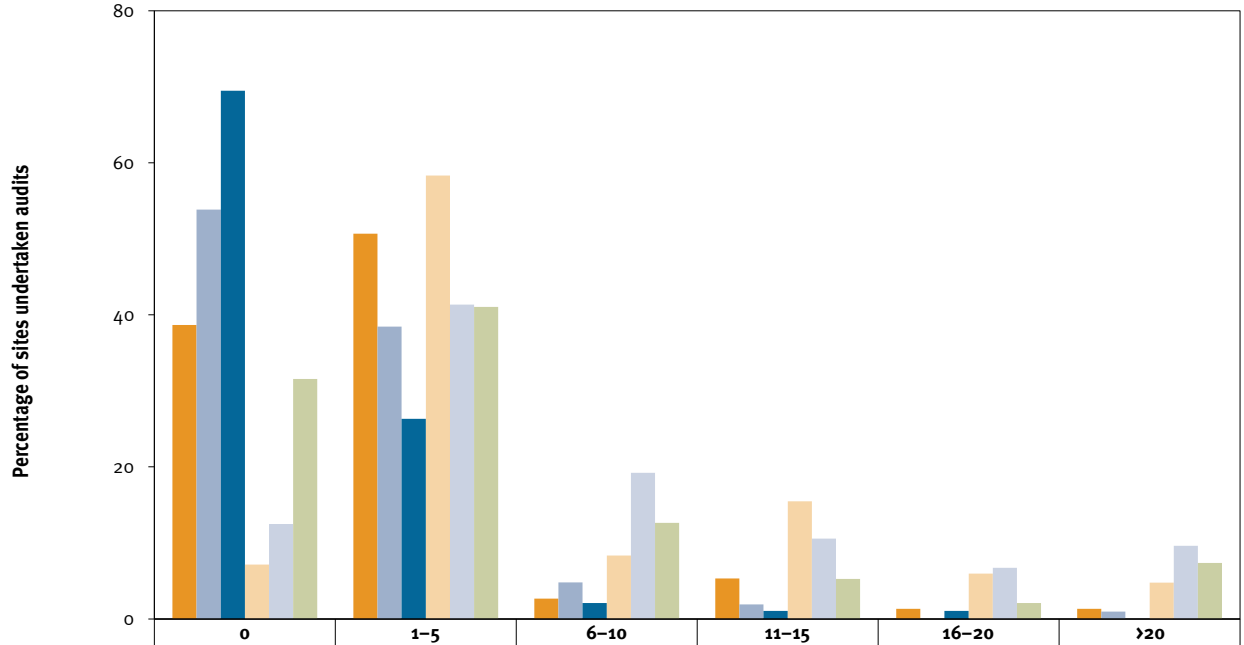
Figure 6.5.2: Annual audits (internal and external) (metalliferous mines), 2012–15



	0	1–5	6–10	11–15	16–20	>20
Metal 2012–13 (Health Audit)	30%	56%	7%	4%	0%	4%
Metal 2013–14 (Health Audit)	67%	23%	7%	0%	0%	3%
Metal 2014–15 (Health Audit)	69%	21%	3%	3%	0%	4%
Metal 2012–13 (Safety Audit)	16%	34%	13%	11%	0%	27%
Metal 2013–14 (Safety Audit)	7%	36%	16%	1%	6%	34%
Metal 2014–15 (Safety Audit)	15%	37%	12%	1%	1%	33%

Number of audits

Figure 6.5.3: Annual audits (internal and external) (quarries), 2012–15



	0	1–5	6–10	11–15	16–20	>20
Quarry 2012–13 (Health Audit)	39%	51%	3%	5%	1%	1%
Quarry 2013–14 (Health Audit)	54%	38%	5%	2%	0%	1%
Quarry 2014–15 (Health Audit)	69%	26%	2%	1%	1%	0%
Quarry 2012–13 (Safety Audit)	7%	58%	8%	15%	6%	5%
Quarry 2013–14 (Safety Audit)	13%	41%	19%	11%	7%	10%
Quarry 2014–15 (Safety Audit)	32%	41%	13%	5%	2%	7%

Number of audits

Figure 6.6: Sites without outstanding improvement actions from annual audits by sector, 2012-15

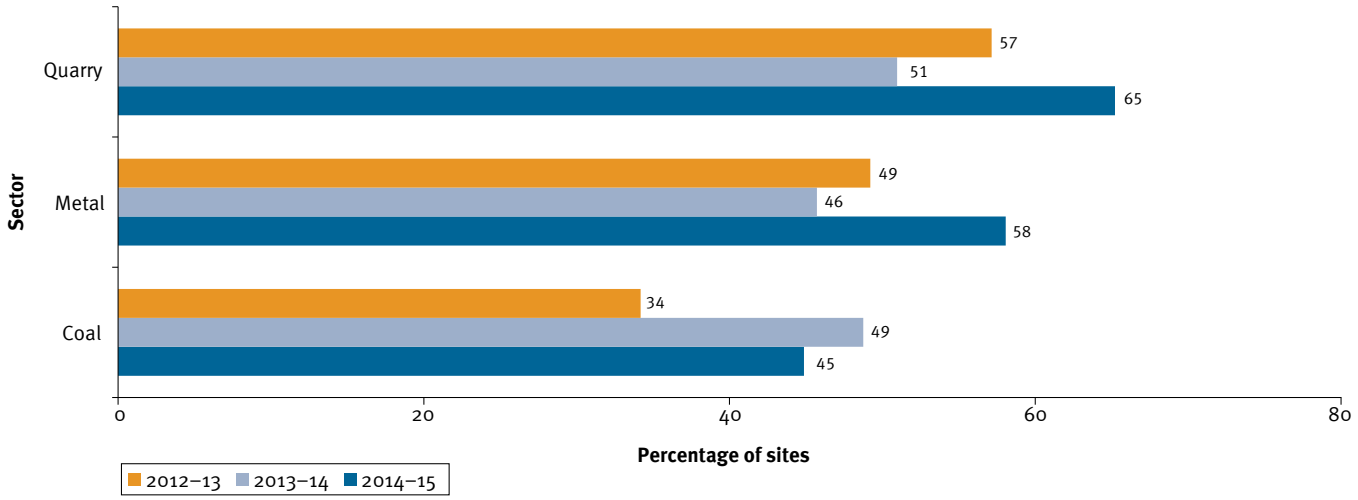


Figure 6.7.1: Workers involved as auditors in internal audits (coal mines), 2012–15

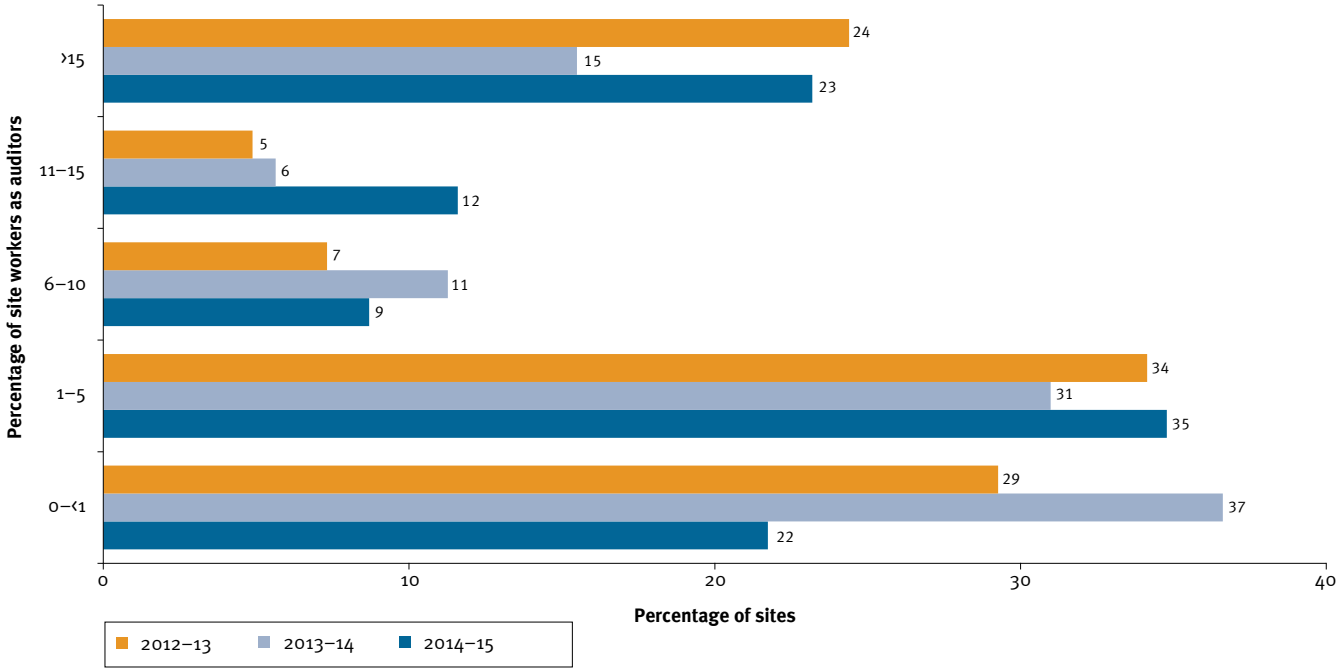


Figure 6.7.2: Workers involved as auditors in internal audits (metalliferous mines), 2012–15

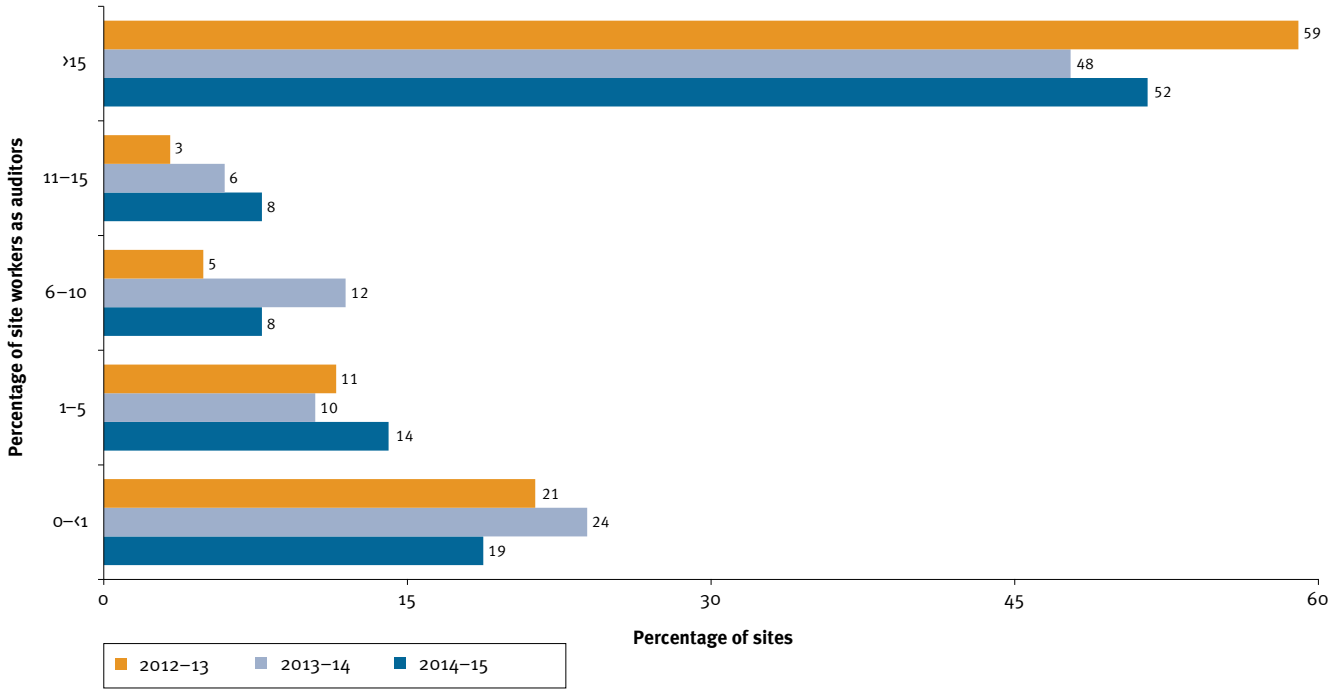


Figure 6.7.3: Workers involved as auditors in internal audits (quarries), 2012–15

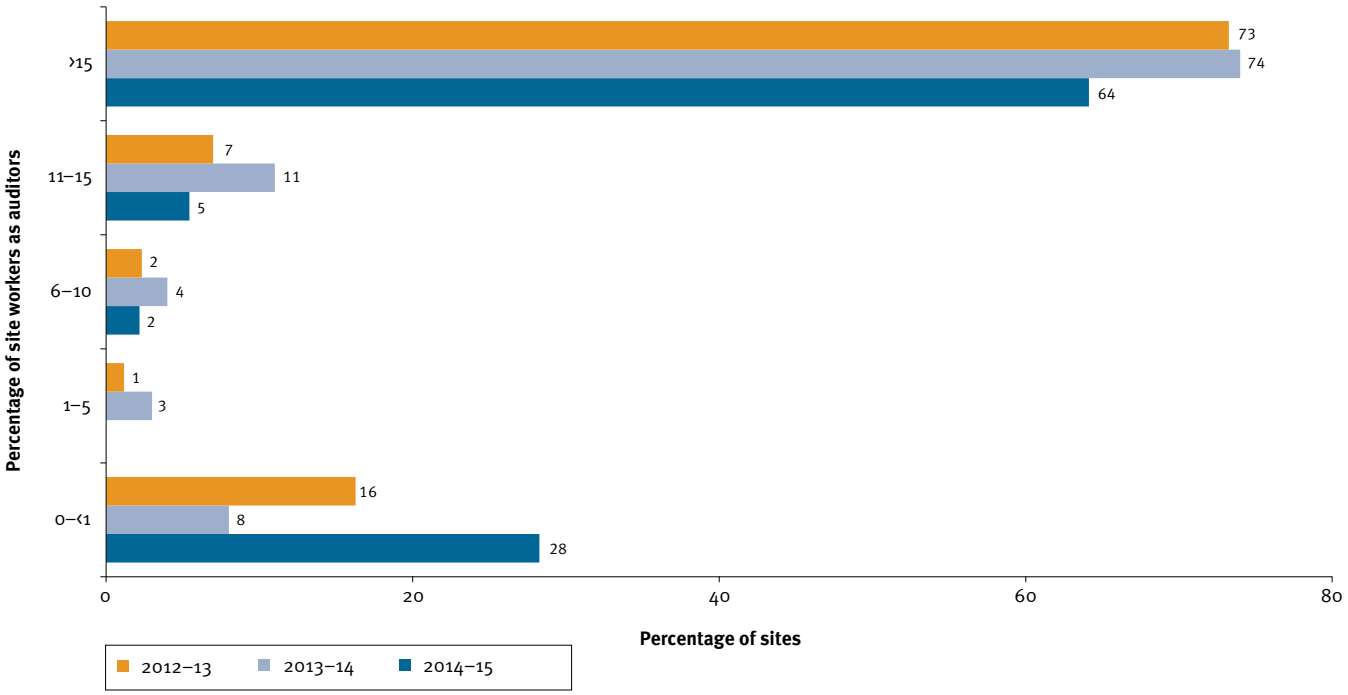


Figure 6.8: Sites with a formal reporting system for capturing and reporting high potential incidents by sector, 2012–15

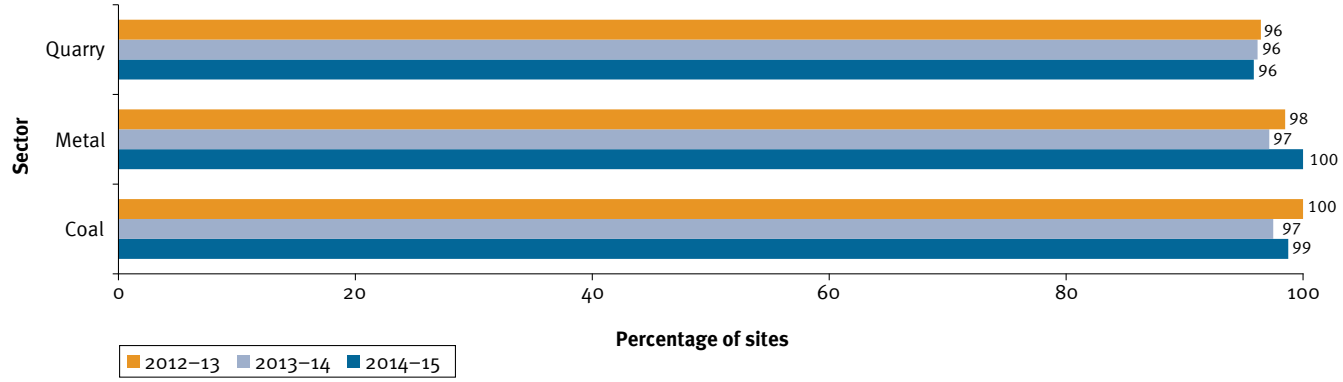


Figure 6.9: Improvement actions resulting from investigations into high potential incidents by sector, 2012-15

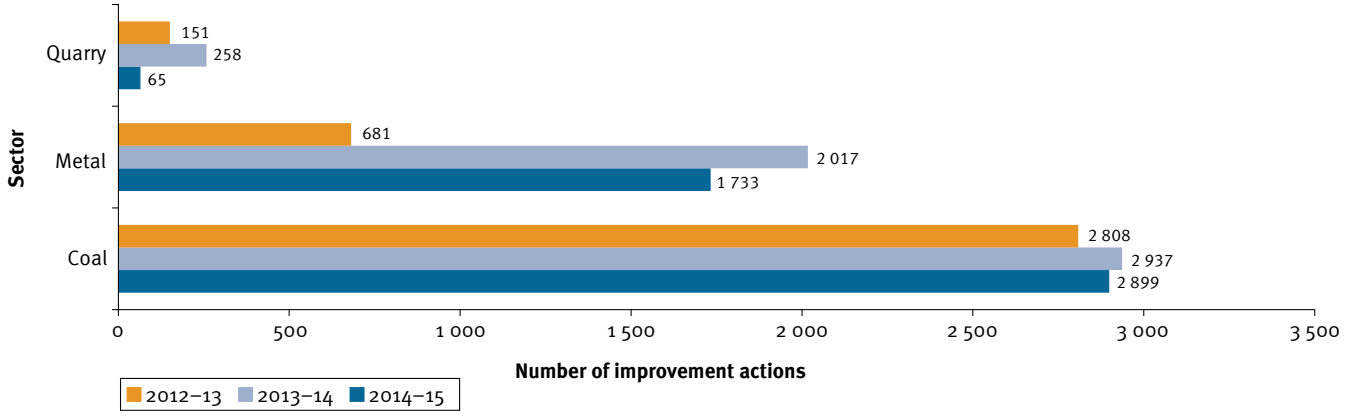
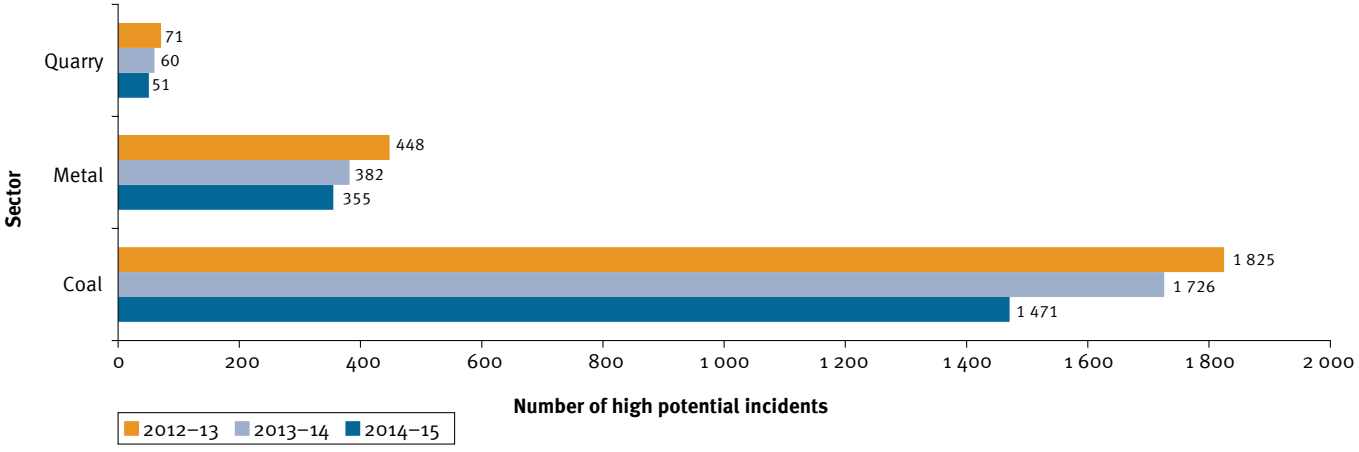


Figure 6.10: High potential incidents by sector, 2012-15



7 HEALTH ASSESSMENT

Health assessment data

Photo: DNRM

7. Health assessment data

All mines and quarries are required to provide health assessments and health surveillance for certain workers. Health assessments for coal mine workers are done under the CMWHS and are recorded by DNRM. For quarries and metalliferous mines, assessments are not submitted to DNRM.

7.1 Coal mine workers' health assessments

Coal mining employers must ensure a health assessment is done for each person who is to be employed, or is employed as a coal mine worker. The health assessment is carried out by a nominated medical advisor (NMA) in accordance with the requirements of the CMWHS. The assessment must be done before the person starts work and periodically as decided by the NMA, but at least once every five years.

The NMA sends a copy of each completed health assessment form to the department where it is recorded in the CMWHS database. There are currently over 105 000 health assessments recorded in the database. The earliest of these health assessments dates back to 1983 under the previous legislation's Coal Board Medical Scheme.

The most recent data on the number of coal mine workers' health assessments received is provided in Table 7.1.

In 2014–15, the department's Health Surveillance Unit (HSU) received 16 463 health assessments. Nearly 1100 of the assessments received were returned to NMAs due to omissions or incomplete information. The HSU manually entered 2989 health assessments into the CMWHS database and over 13 579 health assessments were scanned into pdf format. The optical character recognition project mentioned in last year's report did not produce the expected results and has been suspended.

Table 7.1: Coal Mine Workers' Health Scheme, 2010–15

	2010–11	2011–12	2012–13	2013–14	2014–15
Total health assessments received from NMAs	36 422	54 030	34 483	22 240	16 463
Total health assessments returned to NMAs [1]	1 666	1 698	1 089	1 449	1 154
New industry entrant health assessments entered into Database	9 572	8 849	866	4 361	1 227
Existing worker periodic health assessments entered into Database	5 947	5 689	1 247	5 025	1 762
Total health assessments entered into Database	**15 519**	**14 538**	**2 113***	**9 386**	**2 988****
Total health assessments awaiting Database entry	60 617	91 320	123 690	136 566	150 040
Total health assessments sent for scanning	•	•	38 000	40 280	0
Total health assessments scanned [2]	•	•	23 477	30 157	13 579
Total appointed NMAs [3]	130	182	208	219	255

[1] Incomplete health assessments returned to NMAs to request further information.

[2] To reduce the physical amount of secure, departmental storage required for over 100 000 health assessments, a pdf copy of the health assessment will be held with each database record.

[3] At least one NMA must be appointed by an employer for each Queensland coal mine. There are currently 68 operating coal mines in Queensland.

* Low number of health assessments entered in 2012-13 was due to a combination of slow database server response times; staff turn-over and leave.

** Low number of health assessments entered in 2014-15 was due to a staff turn-over and leave, office refurbishment and relocation from Brisbane to Redbank, extensive trials of optical character recognition software.

8 COMPENSATION DATA

Workers' compensation data

Photo: DNRM

8. Workers' compensation data

The workers' compensation data used in this report has been collected from the Queensland Government Statistician's Office (QGSO) and includes data from WorkCover Queensland and the Workers' Compensation Regulator. The data has been aggregated for each sector.

There were 1533 workers' compensation claims for 2014–15, compared with 1647 claims reported in 2013–14. The sector breakdown of claims is given below:

- coal mining sector—829 claims costing $7.8 million ($9400 average cost per claim)
- metalliferous sector—532 claims costing $3.9 million ($7309 average cost per claim)
- quarrying sector—172 claims costing $820 000 ($4778 average cost per claim).

Data on workers' compensation claims by injury type is provided in Figure 8.1. A five-year comparison of workers' compensation claims by sector is shown in Figure 8.2.

Trauma to muscles and tendons was the most common injury type compensated during 2014–15.

The number of workers' compensation claims has decreased in the coal and metalliferous sectors, and remained steady in the quarrying sector compared to 2013–14.

A breakdown of the number of claims and associated costs for 2014–15 is set out in Table 8.1. This data does not include claims for smelting operations on Queensland mines as the QGSO classifies these claims separately.

Please note it is not possible to determine if the workers' compensation claims detailed in this chapter have resulted in permanent incapacities, nor is it possible to determine which claims may be a result of the injuries reported as permanent incapacities in Chapter 1.

Photo: DNRM

Table 8.1: Workers' compensation data – claims and associated costs, 2014–15

Nature of Injury		Coal mining	Metalliferous mining	Quarrying	All	Cost per claim
Anxiety/Stress disorder	Payment $	217 534	1 453	15 132	234 120	6 328
	No. of claims	24	9	4	37	
Back pain, Lumbago and Sciatica	Payment $	6 194	34 615	1 427	42 237	2 485
	No. of claims	5	9	3	17	
Contusion, bruising and superficial crushing	Payment $	195 202	335 767	20 041	551 010	5 248
	No. of claims	39	48	18	105	
Deafness	Payment $	739 812	330 890	20 595	1 091 297	6 345
	No. of claims	126	43	3	172	
Disk displacement, prolapse and superficial crushing	Payment $	259 267	23 120	489	282 876	14 144
	No. of claims	10	8	2	20	
Dislocation	Payment $	221 738	22 345	5 070	249 152	14 656
	No. of claims	10	6	1	17	
Hernias	Payment $	115 072	95 114	11 442	221 628	11 081
	No. of claims	9	7	4	20	
Hot burn	Payment $	231 280	1 679	0	232 959	29 120
	No. of claims	5	3	0	8	
Laceration or open wound not involving truamatic amputation	Payment $	137 231	192 608	129 273	459 112	4 291
	No. of claims	54	40	13	107	
Other fractures, not elsewhere classified	Payment $	710 040	411 167	102 257	1 223 464	17 731
	No. of claims	38	21	10	69	
Soft tissue injuries due to trauma or unknown mechanisms with insufficient information to code elsewhere	Payment $	601 395	55 544	39 565	696 504	8 392
	No. of claims	48	22	13	83	
Tendonitis	Payment $	40 813	7 120	3 775	51 708	3 447
	No. of claims	9	5	1	15	
Trauma to joints and ligaments, not elsewhere classified	Payment $	387 199	124 165	38 992	550 356	6 184
	No. of claims	49	31	9	89	
Truama to joints and ligaments, unspecified	Payment $	190 798	67 998	116 826	375 622	9 391
	No. of claims	21	13	6	40	
Trauma to muscles	Payment $	311 595	161 138	34 326	507 058	8 049
	No. of claims	33	22	8	63	
Truama to muscles and tendons, not elsewhere classified	Payment $	1 202 799	338 617	5 627	1 547 043	17 000
	No. of claims	62	26	3	91	
Trauma to muscles and tendons, unspecified	Payment $	802 902	718 983	141 442	1 663 327	6 472
	No. of claims	123	100	34	257	
Traumatic amputation	Payment $	70 316	8 134	56	78 506	15 701
	No. of claims	2	2	1	5	
Traumatic tearing away part of the muscle/tendon structure, avulsion	Payment $	30 026	0	207	30 233	5 039
	No. of claims	5	0	1	6	
Unspecified injuries	Payment $	56 305	11 892	1 251	69 449	2 778
	No. of claims	11	9	5	25	
Other	Payment $	1 264 974	945 895	134 071	2 344 940	8 171
	No. of claims	146	108	33	287	
Total	**Payment $**	**7 792 493**	**3 888 244**	**821 864**	**12 502 601**	**8 156**
	No. of claims	**829**	**532**	**172**	**1 533**	

Figure 8.1: Workers' compensation claims by major injury/illness types (all sectors), 2010–15

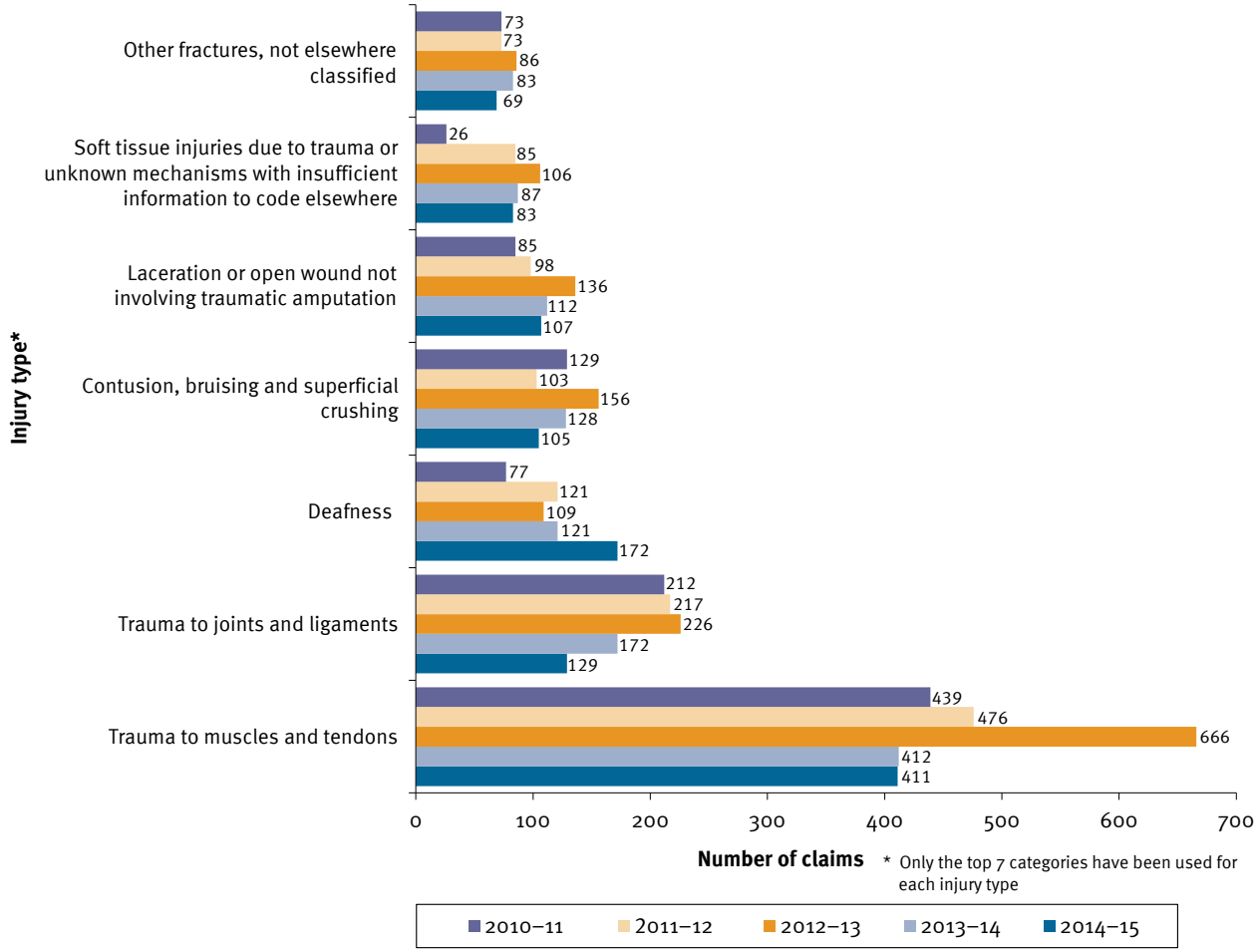
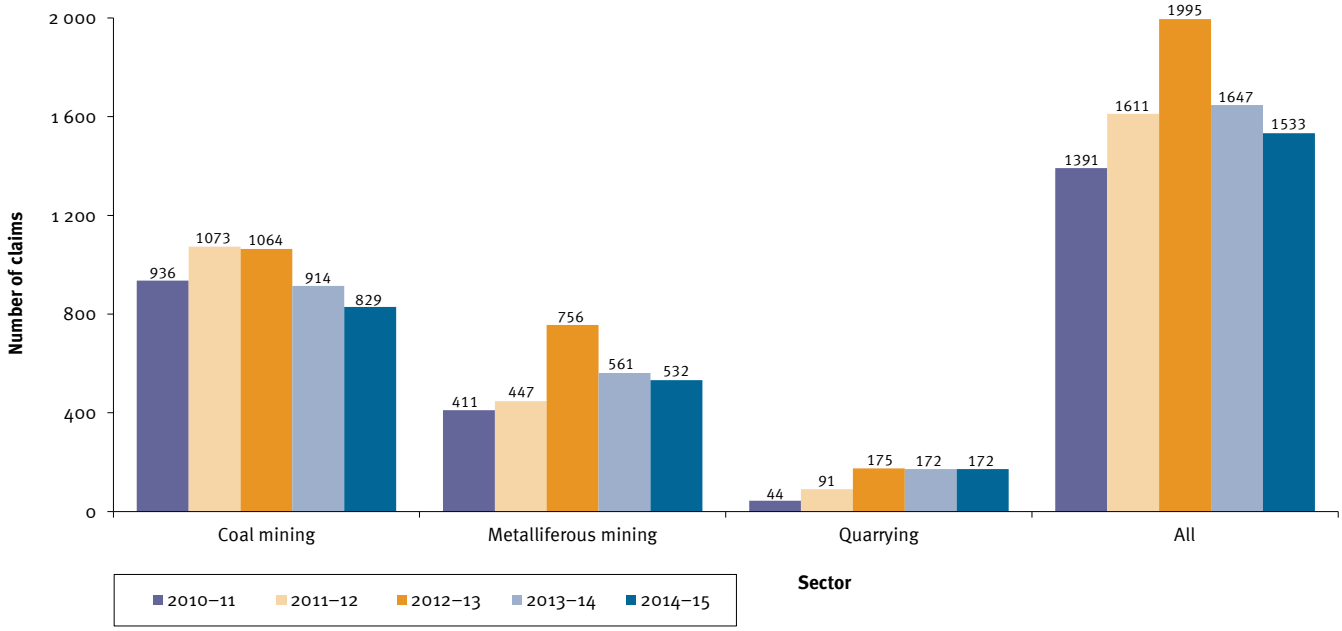


Figure 8.2: Five-year comparison of workers' compensation claims per sector, 2010–15



9 INFORMATION

Collection of information

9. Collection of information

The department collected the information used in this report a number of ways. Injuries and incidents were reported by mine and quarry operators. Details of injuries, time lost and/or alternative duties and hours worked were reported monthly by large mines and quarries. The number of workers was gathered from the quarterly Queensland Mining and Quarrying Industry Census submissions. The census data was used to validate the hours of work data submitted and has been reported here where a significant difference was found.

The dataset used in this report is not usually complete until well into the following financial year because mines often take considerable time to supply the data. An arbitrary cut-off, in order to start analysis, usually takes place in September each year after most of the data has been received. For this reason there will be minor changes in data reported in this year's report for previous years because all financial year's data are updated with each new report.

9.1 Data collected

Fatalities, accidents that resulted in injuries involving the loss of at least one full working shift (LTIs), DIs and medical treatment injuries (MTIs) are included in this report. High potential incidents are also included.

Data on permanent incapacities is collected. A permanent incapacity is any work-related injury or disease that leads to one or more of the following outcomes:

- the complete loss, or permanent loss of use, of any member or part of the body
- any permanent impairment of any member or part of the body, regardless of any pre-existing disability of that member or part
- any permanent impairment of physical/mental functioning, regardless of any pre-existing impaired physical or mental functioning
- a permanent transfer to a different job
- termination of employment.

Accidents and injuries that occurred while employees were travelling to or from work are not included in this report.

9.2 Access to the lost time accident database

Twenty consecutive years of injury and disease data for coal and metalliferous mines is available to industry and members of the public on request including site specific performance and sector-wide data. The data can be used as a benchmark in the preparation of safety management systems.

Requests for information received during 2014–15 included:

- the number of fatalities and number of employees in the Queensland mining industry and coal sector for 2013, by the Chamber of Mines of South Africa
- lost time injury data for 2008 to 2015 to assist Simtars with a mine site safety training needs analysis
- surface coal mine statistics for 2013—14, provided to a mining company
- Queensland mines and quarries statistics for 1980—2014, provided to a researcher to assist in risk assessment research into the Australian coal mining industry
- all injury frequency rates and lost time injury frequency rates for Queensland underground and open cut mines over the last five years, provided to a mining company to assist with their safety management review
- twenty-five years of data on total recordable injury frequency rates and fatalities, provided to a mining company
- mine safety performance league tables, provided to a mining company manager
- current age distribution of coal mining employees, average age of retirement from the coal mining industry and the age distribution of coal mining employees made redundant and their length of service, provided to a senior associate of a law firm
- coal and metalliferous underground high potential incident breakdowns for 2009–14, provided to the Institution of Fire Engineers
- information on back strain and sprains occurring in open cut pit-mining, workshops and at exploration sites, provided to Simtars for research purposes.

To request data, contact the regional Mines Inspectorate office or email minesafetystats@dnrm.qld.gov.au.

Mines Inspectorate contact details can be accessed at www.dnrm.qld.gov.au.

This report provides information to assist industry improve their safety and health management systems and processes. DNRM welcomes suggestions for improvement and feedback on the report. Please email customerfeedback@dnrm.qld.gov.au or call 13 QGOV (13 74 68).

Thanks are extended to the Queensland mining industry for providing the data used in this report.

Photo: DNRM

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