

**Queensland Mines and Quarries  
Safety Performance and  
Health Report**  
1 July 2005 to 30 June 2006

December 2006

## Disclaimer

The data in this report is derived from the Lost Time Accident Database and information—including survey responses—supplied by mining and quarrying operators throughout Queensland. Some data has been summarised or consolidated in order to present it in a standardised format in this report.

Although the Department of Mines and Energy 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.

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# Foreword from the Director-General

I am pleased to present the *Queensland Mines and Quarries Safety Performance and Health Report for 2005–06*. Continuing the trend of recent years, the report shows yet another improvement in the safety performance of the state's mines and quarries.

This result has come about despite the challenges of increased production, mine expansions and a rapidly increasing number of employees new to the industry—a symptom of the state's skills shortage. It reflects the commitment of all involved in the industry to the creation of a safe and healthy workplace.

The statistics show an improvement in the overall industry lost time injury frequency rate (LTIFR), from 4.6 in 2004–05 to 4.2 in 2005–06—the lowest figure on record. The total number of lost time injuries reported in 2005–06 was 308, compared with 919 a decade ago. This is remarkable in that, during the past 10 years, the number of people employed in the industry has increased by about 65 per cent.

Although the statistics show considerable improvement in terms of lost time injuries, it is essential the industry does not become complacent. Sadly, in 2005–06 there were two deaths, both of

them on surface coal mines. This is deeply distressing to the families, friends and colleagues of these two men, and indeed to government and the industry as a whole.

The Department of Mines and Energy is committed to working with all levels of industry to make sure mine safety continues to improve.

As a new initiative, my department is devoting more attention to the health of mine workers. To this end, the Mines Inspectorate has been investigating the reduction of potentially carcinogenic diesel particulate emissions in underground mines. The Inspectorate has also engaged occupational hygienists and an ergonomist to provide health advice to the mining industry and the Inspectorate.

I congratulate the organisations and individuals within the industry who have shown extraordinary commitment to continuously improving the safety and health of Queensland's mining workforce. This report demonstrates how vital their efforts are to industry safety.

Along with industry and the Mines Inspectorate, the Department of Mines and Energy fully supports the vision of a mining industry free of injury and incidents.

**Dan Hunt**  
**Director-General**  
**Department of Mines and Energy**

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# Acronyms and definitions

## Acronyms

**DIFR:** disabling injury frequency rate

**HPI:** high potential incident

**LHD:** load haul dump

**LTI:** lost time injury

**LTIFR:** lost time injury frequency rate

**LT&DIFR:** lost time and disabling injury frequency rate

## Definitions

**Body location:** the bodily location of the most serious original injury or disease.

**Breakdown agency:** the chemical, product, environmental factor or equipment most closely associated with the breakdown event. (The breakdown event is the point at which things started to go wrong, and which ultimately led to the most serious injury or disease.)

**Causal factor:** the organisational, team/individual, task/environment or absent/failed defences factor most closely associated with the cause of the incident.

**Classification of injury:** relates to the specific work activity being undertaken at the time of the incident.

**Coal mines:** mines subject to the *Coal Mining Safety and Health Act 1999* and associated regulations.

**Days lost:** the total number of working days lost because of the injury, and days lost because of recurrences of injuries from previous periods.

**Disabling injury:** a work-related injury or disease resulting in a worker being unable to fully perform their regular job. (Either light or alternative duties are performed.)

**Duration rate:** the average time (days) lost for each LTI. (In this report, time lost includes all time lost for an incident to date.)

**Equipment involved:** the equipment and/or tools in use or being accessed at the time of the incident, regardless of the breakdown agency involved. (These

may or may not have contributed to the cause of the incident.)

**High potential incident:** an event or series of events that adversely affects or has the potential to adversely affect the safety or health of a person.

**Incidence rate:** the number of lost time injuries/diseases per 100 employees.

**Lost time injuries per million**

**tonnes:** the number of lost time injuries per million tonnes of raw coal production.

**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. A fatal injury is treated as 220 shifts lost, starting with the shift in which it occurred.)

**Lost time injury frequency rate:** the number of lost time injuries/diseases per million hours worked.

**Lost time & disabling injury frequency rate:** the number of lost time injuries/diseases and disabling injuries per million hours worked.

**Mechanism of injury:** the action, event or exposure that directly caused the most serious injury or disease.

**Medical treatment:** an injury requiring treatment by a doctor, nurse or person qualified to give first aid.

**Metalliferous mines:** mines subject to the *Mining and Quarrying Safety and Health Act 1999* and associated regulations.

**Nature of injury:** the most serious injury or disease resulting from an incident.

**Permanent incapacity:** 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 part of the body.
- Any permanent impairment of any part of the body, regardless of any pre-existing disability of that part.
- Any permanent impairment of physical or mental functioning, regardless of any pre-existing impaired physical/mental functioning.
- A permanent transfer to any job.
- Termination of employment.

**Quarries:** excavations of hard rock for use in construction. (These operations are covered by the *Mining and Quarrying Safety and Health Act 1999* and associated regulations.)

**Severity rate:** the time (days) lost per million hours worked.

**Surface metalliferous operations:** all open-cut mines; and surface operations at Xstrata pcl's Mount Isa operations.

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# Summary from the Chief Inspectors of Mines

We are very pleased to present the *Queensland Mines and Quarries Safety Performance and Health Report* for 2005–06. In addition to this report, two illustrated posters detailing key aspects of the report—one for the coal sector and one for the metalliferous sector—will be distributed shortly.

The report, which includes information on individual sectors, is available on the department's web site at [www.dme.qld.gov.au](http://www.dme.qld.gov.au).

We are pleased to report that, in 2005–06, the whole-of-industry lost time injury frequency rate (LTIFR) fell by nine per cent, to 4.2. This decrease coincided with an increase of over 5700 employees in the mining and quarrying industry in 2005–06. The severity rate fell 17 per cent, from 104 to 86, and the duration rate dropped from 22.8 to 20.6.

Safety performance in metalliferous mines and quarries continues to improve, with the overall LTIFR falling from 4.1 to 3.7. Coal mining safety performance also showed improvements this year. The overall LTIFR fell from 4.9 to 4.5, despite a slight increase in the underground coal mines LTIFR, from 11.8 to 12.1. The LTIFR for surface coal mines fell from 3.1 to 2.8.

It is with regret that we have to report two fatalities this year, both of which occurred on surface coal mines. The first involved a truck driver who was changing a wheel on his vehicle in the mine workshop. He had started to remove the wheel studs without

deflating either the inner or outer tyre of the dual wheel assembly. The inner rim had cracked and was only held in by the force of the studs. Stored pressure in the inner tyre overcame the remaining studs and the tyre exploded.

The second fatality involved a senior mining engineer whose body was found near a pond in an old and isolated open-cut void. There were signs that, after falling 40 m from the highwall area into the water below, he had swum to the shoreline, where he died of his injuries before being found by searchers.

The reporting of high potential incidents (HPIs) has increased, from 715 in 2004–05 to 839 in 2005–06. While the increased reporting of HPIs shows the maturity of the industry, it is essential that these incidents are fully investigated by the mines and quarries and that controls are implemented to prevent their recurrence.

It is always a pleasure to acknowledge good performance. In December 2005 the Minister for Natural Resources and Mines presented safety awards at the eighth annual briefing of leaders of the Queensland mining and quarrying industry, hosted by the Mines Inspectorate. The winner of the 2005 trophy for Best Safety Management in Queensland was Crinum Mine (BMA Alliance Coal Operations Pty Ltd).

Also recognised were Phosphate Hill mine (WMC Fertilizers);

Black River quarry (Barro Group Pty Ltd); Eaglefield mine (Macmahon Contractors Pty Ltd); Commodore mine (Roche Mining); and Dundowran West quarry (Barro Group Pty Ltd).

The review of the Queensland Mines Inspectorate was completed in June 2005; work on implementing the review recommendations continued throughout the year.

This was the latest of three reviews of the Inspectorate since the Moura No. 2 mine accident in 1994 (the catalyst for the reviews). The reviews are designed to ensure the Inspectorate's regulation of mines safety and health is world's best practice and that the Inspectorate remains relevant in an ever-changing industry.

The latest review examined the Inspectorate's performance and future capacity to meet government, industry and workforce

expectations, including its skills base, structure and location.

One of the many outcomes of the review was a flattening of the Inspectorate's management structure: the statutory Chief Inspectors now report directly to the Executive Director—Safety and Health.

Development of a new health surveillance process for coal and metalliferous mines and quarries continued. A new health assessment process for coal mine workers is expected to be introduced within the coming year.

We wish to thank all the contributors to this report for their assistance in ensuring timely and accurate reporting. We trust industry and government will find the report useful in helping them identify safety and health priorities.

**Roger Billingham**  
Chief Inspector of Mines

**Brian Lyne**  
Chief Inspector of Coal Mines



**TABLE 1 Injury statistics 2005–06**

	Number of lost time injuries (LTI)		Days lost		Million hours worked*		LTI frequency rate *		Severity rate #		Duration rate *		Number of medical treatments		Number of disabling injuries		Number of high potential incidents		Number of permanent incapacities		Number of fatalities	
	04–05	05–06	04–05	05–06	04–05	05–06	04–05	05–06	04–05	05–06	04–05	05–06	04–05	05–06	04–05	05–06	04–05	05–06	04–05	05–06	04–05	05–06
Coal surface	90	106	2 681	2 009	28.6	37.8	3.1	2.8	94	53	29.8	19.0	254	384	101	169	290	451	2	1	0	2
Coal underground	87	101	1 405	2 863	7.3	8.4	11.8	12.1	191	341	16.1	28.3	238	374	154	236	112	123	1	1	0	0
Coal subtotal	177	207	4 086	4 872	35.9	46.2	4.9	4.5	114	105	23.1	23.5	492	758	255	405	402	574	3	2	0	2
Metalliferous surface	53	44	981	657	14.2	15.3	3.7	2.9	69	43	18.5	14.9	n.a.	n.a.	36	40	123	89	0	1	2	0
Metalliferous underground	31	36	930	679	8.0	9.3	3.9	3.9	117	73	30.0	18.9	n.a.	n.a.	91	65	151	144	0	0	1	0
Metalliferous subtotal	84	80	1 911	1 336	22.2	24.6	3.8	3.3	86	54	22.8	16.7	n.a.	n.a.	127	105	274	233	0	1	3	0
Quarries	17	21	348	144	2.7	2.7	6.3	7.8	129	53	20.5	6.9	n.a.	n.a.	2	5	39	32	0	1	1	0
<b>TOTAL</b>	<b>278</b>	<b>308</b>	<b>6345</b>	<b>6352</b>	<b>60.8</b>	<b>73.5</b>	<b>4.6</b>	<b>4.2</b>	<b>104</b>	<b>86</b>	<b>22.8</b>	<b>20.6</b>	<b>492</b>	<b>758</b>	<b>384</b>	<b>515</b>	<b>715</b>	<b>839</b>	<b>3</b>	<b>4</b>	<b>4</b>	<b>2</b>
Exploration	2	4	115	3	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	0.0	0.0	0	0	0	0	0	8	0	0	0	0

# Rounded to whole numbers.

\* Rounded to 1 decimal place.

n.a. = not available

# Statistical summary

(See table 1)

## Fatalities

- Two fatalities occurred during 2005–06, both on surface coal mines.

## Permanent incapacity injuries (see definition on page vii)

Four permanent incapacity injuries were reported in 2005–06:

- 1 for surface coal mines
- 1 for underground coal mines
- 1 for surface metalliferous operations
- 0 for underground metalliferous mines
- 1 for quarries.

## Lost time injuries (LTIs)

From a workforce of approximately 21 400 employees in 2005–06 in coal mines:

- 207 LTIs were reported by all coal mines (177 for 2004–05)
  - 106 LTIs were reported by surface coal mines (90 for 2004–05)
  - 101 LTIs were reported by underground coal mines (87 for 2004–05).

From a workforce of approximately 10 600 employees in 2005–06 in metalliferous mines and quarries:

- 101 LTIs were reported by all metalliferous mines and quarries (101 for 2004–05)
  - 44 LTIs were reported by surface metalliferous operations (53 for 2004–05)
  - 36 LTIs were reported by underground metalliferous mines (31 for 2004–05)
  - 21 LTIs were reported by quarries (17 for 2004–05).

## Lost time injury frequency rate (LTIFR—injuries per million hours worked)

The lost time injury frequency rates in 2005–06 were:

- 2.8 for surface coal mines (3.1 for 2004–05)
- 12.1 for underground coal mines (11.8 for 2004–05)
- 2.9 for surface metalliferous operations (3.7 for 2004–05)
- 3.9 for underground metalliferous mines (3.9 for 2004–05)
- 7.8 for quarries (6.3 for 2004–05).

## Severity rate (Days lost per million hours worked)

The severity rates in 2005–06 were:

- 53 for surface coal mines (94 for 2004–05)
- 341 for underground coal mines (191 for 2004–05)
- 43 for surface metalliferous operations (69 for 2004–05)
- 73 for underground metalliferous mines (117 for 2004–05)
- 53 for quarries (129 for 2004–05).

## Duration rate (Days lost per LTI)

The duration rates in 2005–06 were:

- 19 for surface coal mines (29.8 for 2004–05)
- 28.3 for underground coal mines (16.1 for 2004–05)
- 14.9 for surface metalliferous operations (18.5 for 2004–05)
- 18.9 for underground metalliferous mines (30 for 2004–05)
- 6.9 for quarries (20.5 for 2004–05).

## Medical treatments (see definition on page vii)

The numbers of medical treatments reported in 2005–06 were:

- 384 for surface coal mines (254 for 2004–05)
- 374 for underground coal mines (238 for 2004–05).

## Disabling injuries (see definition on page vi)

The numbers of disabling injuries reported in 2005–06 were:

- 169 for surface coal mines (101 for 2004–05)
- 236 for underground coal mines (154 for 2004–05)
- 40 for surface metalliferous operations (36 for 2004–05)
- 65 for underground metalliferous mines (91 for 2004–05)
- 5 for quarries (2 for 2004–05).

## High potential incidents (see definition on page vii)

The numbers of high potential incidents reported in 2005–06 were:

- 451 for surface coal mines (290 for 2004–05)
- 123 for underground coal mines (112 for 2004–05)
- 89 for surface metalliferous operations (123 for 2004–05)
- 144 for underground metalliferous mines (151 for 2004–05)
- 32 for quarries (39 for 2004–05).

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# 1. Industry overview

This report covers accidents in Queensland mines and quarries that are subject to the provisions of the *Coal Mining Safety and Health Act 1999* and *Mining and Quarrying Safety and Health Act 1999*. It relates to accidents from 1 July 2005 to 30 June 2006 that resulted in injuries involving the loss of at least one full working shift. Accidents that occurred while employees were travelling to or from work are not included in the analysis. Disabling injuries (employees on alternate/light duties) and high potential incidents are also reported.

The report was prepared using the department's Queensland Mining Industry Lost Time Accident Database.

The definitions in the report conform to the workplace injury and disease recording standard (AS 1885.1–1990), except the standard's definitions of severity rate (days lost per million hours worked), and average lost time rate (number of days lost per lost time injury)—which in this report is called the 'duration rate'.

The aim of the report is to focus the attention of mine management and mine workers on safety and health priorities and to encourage proactive planning of strategies to improve safety and health performance.

## Fatal injuries

### Coal mines

Two fatal accidents occurred on surface coal mines during this reporting period compared with none for the previous period.

On 7 August 2005 a truck driver was fatally injured while changing a wheel on his vehicle in the mine workshop. He had started to remove the wheel studs without deflating either the inner or outer tyre of the dual wheel assembly. The inner rim had cracked and was only held in by the force of the studs. Stored pressure in the inner tyre overcame the remaining studs and the tyre exploded.

On 20 September 2005 a 41-year-old senior mining engineer was found dead at the edge of a pond in an old and isolated open-cut void. There were signs that, after falling 40 m, from the highwall area into the water below, he had swum to the shoreline, where he died of his injuries before being found by searchers.

A comparison of coal mining fatalities over the past 20 years is shown in figure 1A.

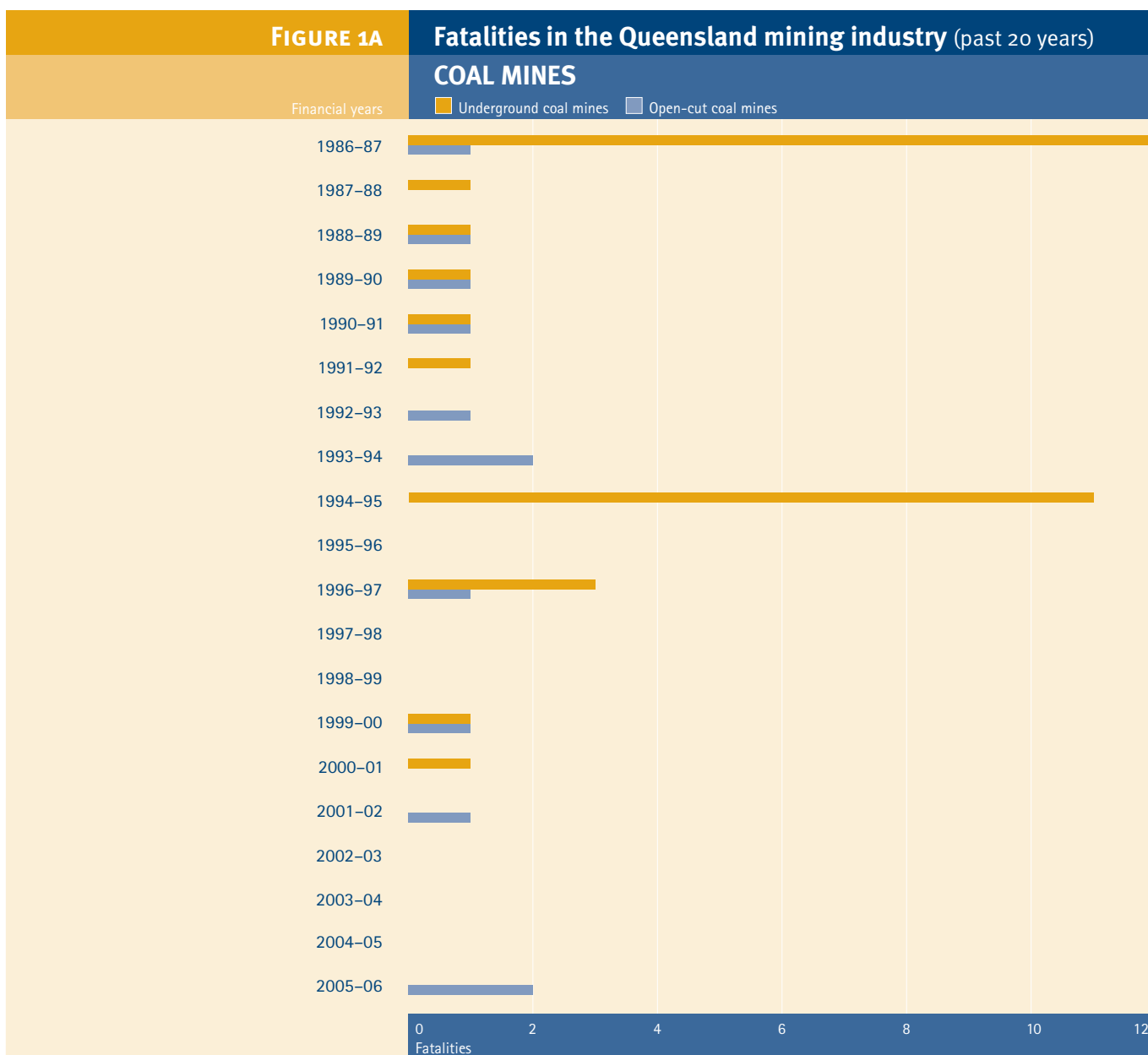
### Metalliferous mines

It is pleasing to note that there were no fatal accidents on metalliferous mines or quarries during the reporting period.

A comparison of metalliferous mining fatalities over the past 20 years is shown in figure 1B.

### Permanent incapacities

- The tip of the first finger of an employee’s right hand was severed when he pointed at a moving part on a drill.
- Two men were using an airtrack drill rig to drill eight-metre holes in a roof. While one of them was trying to clear the chuck of a build-up of debris, six metres of connected drill steels were released from the roof, striking one of his fingers. The finger was later amputated.
- An operator had the top of his left ring finger severed whilst trying to lever open a jammed valve on a tailings pump.
- While positioning a load onto a stand as it was being lowered by a crane, an operator suffered crushed fingers.



### Significant incidents

#### Coal

- A contract crane operator sustained serious injuries after falling 11 m into a ‘run of mine’ bin at an open-cut mine. The operator was using the crane to lift steel plates over an open grid in readiness for the following day’s work. Poor light contributed to the accident. He fell after exiting the crane in a dimly lit area.

- A contractor truck driver was fortunate to survive when his vehicle rolled over at the bottom of a pit access ramp and burst into flames before rescuers could get to the vehicle. Fortunately, the truck driver was very fit and was able to climb out of the vehicle unassisted. He received serious burns to his body and will take an extended period to recover.

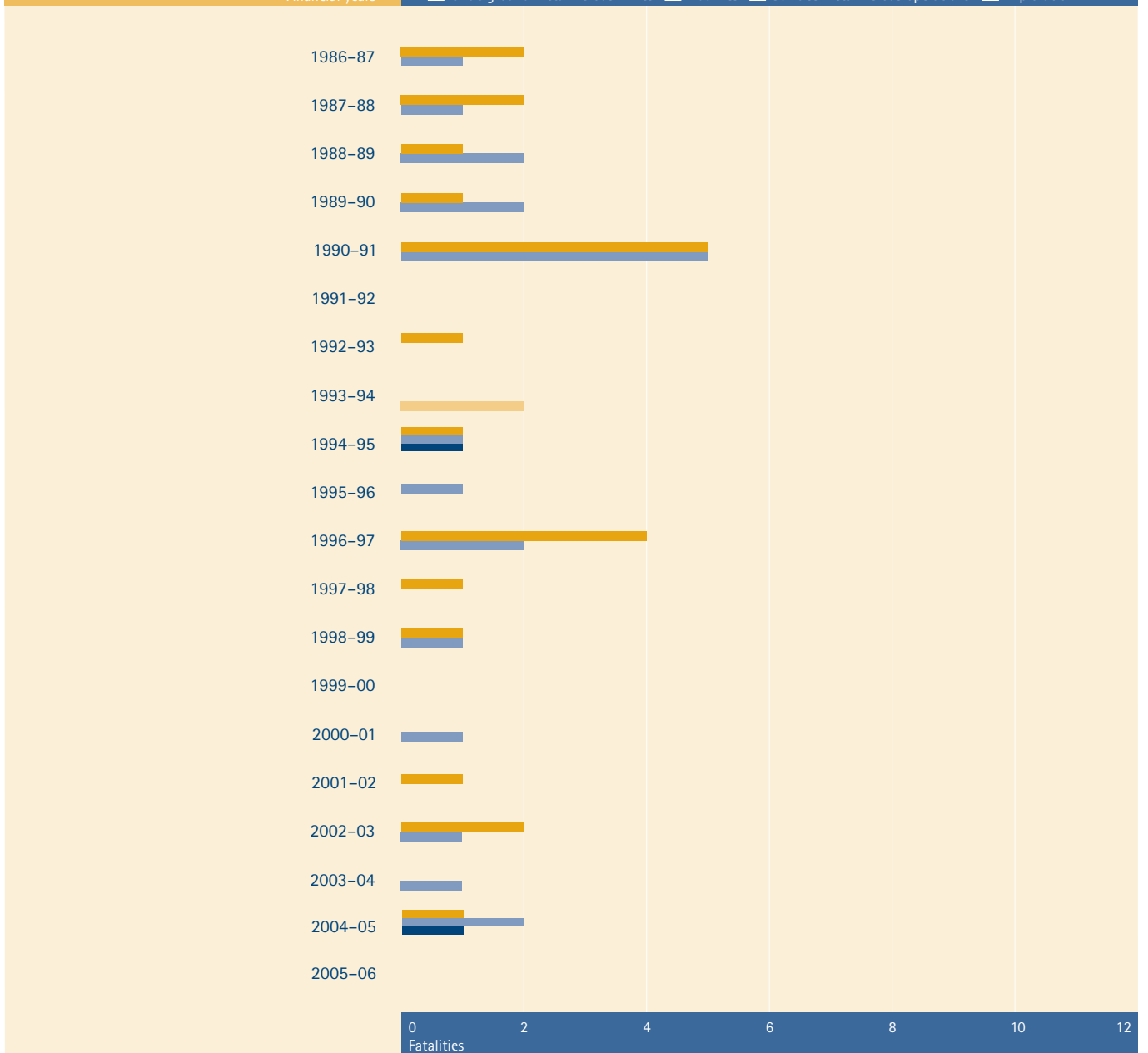
**FIGURE 1B**

**Fatalities in the Queensland mining industry (past 20 years)**

#### METALLIFEROUS MINES AND QUARRIES

Financial years

■ Underground metalliferous mines 
 ■ Quarries 
 ■ Surface metalliferous operations 
 ■ Exploration



- Certificates of Competency were fraudulently provided to persons who had not undertaken the relevant training. The matter was handed over to the police for further action.

#### **Metalliferous**

- An electrician received serious burns to his arms and legs from a flashover that occurred while he was placing a lock on a shutter inside a circuit breaker cabinet.
- Two dimension stone quarry workers sustained toe injuries when a sawn sandstone slab they were separating from a sandstone block fell about 150 mm onto their feet.
- A worker at a quarry was using a nine-inch grinder when it kicked back and struck him on the forearm, causing a deep laceration and severing tendons.
- An adult apprentice received lacerations to his leg while cutting poly-sheeting with a circular saw at a smelter.
- At an open-cut mine, charged blast holes began to smoke while the charge crew was working on the shot. Shortly after they evacuated the shot, there was a premature detonation.
- A drill operator in a development heading in an underground mine drilled into a misfired lifter hole, which detonated and damaged the drill.
- A 20 000 tonne rock-fall in old underground workings created an air blast which damaged equipment.
- There were three incidents in underground mines in which workers unintentionally drilled through into current mine workings.

#### **Prosecutions**

In October 2005 complaints were laid before the Industrial Magistrate alleging breaches of the *Mining and Quarrying Safety and Health Act 1999* by a mine operator and a Site Senior Executive. The complaints relate to a fatal accident in November 2004. By the end of the reporting period, no dates had been set for the hearing.

One prosecution was initiated against a coal mine operator and staff member following an incident in which two workers were injured by a large volume of clay that fell from an excavator. The matter is still before the courts.

#### **Coroners' inquests into mine fatalities**

Mr Peter Whitoria Marshall died at the Zinifex Century Mine on 9 February 2004 after being struck by a tyre and wheel rim assembly while carrying out tyre-fitting duties. The inquest into the death was held in Brisbane in June 2005 and the State Coroner released his findings on 19 May 2006.

Mr Marshall had been removing a deflated outer rear tyre assembly from a large off-highway truck when the inner tyre deflated explosively. The outer tyre assembly was projected some 13 m, striking Mr Marshall and a work colleague. Mr Marshall was pinned under the outer tyre and rim assembly and suffered fatal injuries.

#### **Coroner's recommendations**

In his findings, the State Coroner made three recommendations:

1. Review of safety culture
  - 'I recommend that Zinifex Century and REJV engage a competent consultant with an industrial or organisational psychology background to review the safety culture of the operation with a view to better informing management of how

safe work practices can be internalised by staff of the mine.’

2. How to deliver meaningful supervision

‘I recommend that the Mines Inspectorate investigate how meaningful supervision can be delivered to a heterogeneous workforce of skilled autonomous workers engaged on a disparate site and that they publish their findings and practical examples applicable to various mining activities.’

3. Revision of AS 4457

‘I recommend that the Mines Inspectorate, Simtars [Safety in Mines Testing and Research Station] and industry participants continue with the revision of AS 4457 and that special attention be given to tyre handling, lock ring retention and rim maintenance.’

In addition to starting to implement the recommendations, the Mines Inspectorate:

- held a tyre-fitters workshop in 2004 that attracted a wide cross-section of industry; a report on the results of the workshop is available on the DME internet site
- revised the national training competencies for fitting and maintaining tyres and rims
- held seminars throughout Queensland, including presentations and discussions on wheel and rim safety.
- widely publicised information on tyre/rim/wheel safety.

## High potential incidents

A high potential incident (HPI) is defined in the mining Acts as 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. The reporting of HPIs enables industry to implement proactive strategies for managing the identified risks—before someone is injured. This is why HPIs have been called ‘free lessons’.

The reporting of HPIs at mines and quarries is mandated by legislation. The ramifications of these incidents are often costly, both in human and commercial terms. It is therefore important that this data is gathered and not lost. The publication of this collective data benefits industry by raising awareness of repeat incidents at mines so that corrective action can be taken. An effective incident reporting system is also indicative of a mature industry that treats safety seriously.

Periodic summaries of reported HPIs—in the form of general incident descriptions and quarterly year-to-date graphs—are circulated to mines via email. Also, graphical breakdowns and statistics on HPIs by each mining sector are available on the department’s web site at [www.dme.qld.gov.au](http://www.dme.qld.gov.au).

Below are some examples of the HPIs reported in 2005–06; the numbers of incident types are shown in figure 2.

### Surface coal mines

- Several large falls of strata from open-cut highwalls occurred during this period. One of the falls resulted in the loss of a large excavator; in others, vehicles and machines were temporarily trapped. Fortunately, none of the incidents resulted in serious injuries.

- The theft of a quantity of explosives and detonators was reported from a mine explosives magazine.
- A slurry dam failed following heavy rainfall.
- Several catastrophic failures of high-tension electrical switchboards occurred in surface plants; one person was seriously injured.
- Fires on large diesel-engine vehicles and plant continued to be reported regularly. These incidents have been brought to the attention of mine operators on several occasions.

#### **Underground coal mines**

- Unplanned movements of radio- and remote-controlled equipment occurred. Although no injuries were sustained, the recurrence of this type of incident is of concern.
- Two open fires were reported on underground conveyors.
- An uncontrolled release of methane gas from some drainage lines required electrical apparatus in a working panel to be isolated until the problem was solved.

#### **Surface metalliferous mines**

- Falling/flying material incidents were the most common type reported. Several stemmed from maintenance work. In one incident, a front-end loader was filling a dump truck when a tyre burst, throwing material onto nearby buildings. In another, several large rocks rolled over the wing walls of an ROM hopper, damaging hand rails, a light fitting and a walkway.

- Reports of electrical incidents were also common. There were several cases of electrical contact/shock involving workers fixing or using electrical equipment or coming into contact with live wires, as well as vehicles' electrical parts catching fire.
- Numerous cases of loss of control/unplanned movement were reported. Several involved trucks rolling onto their sides. One case involved a dump truck which missed the entrance to a one-way drain crossing, ending up on its side in the drain.

#### **Underground metalliferous mines**

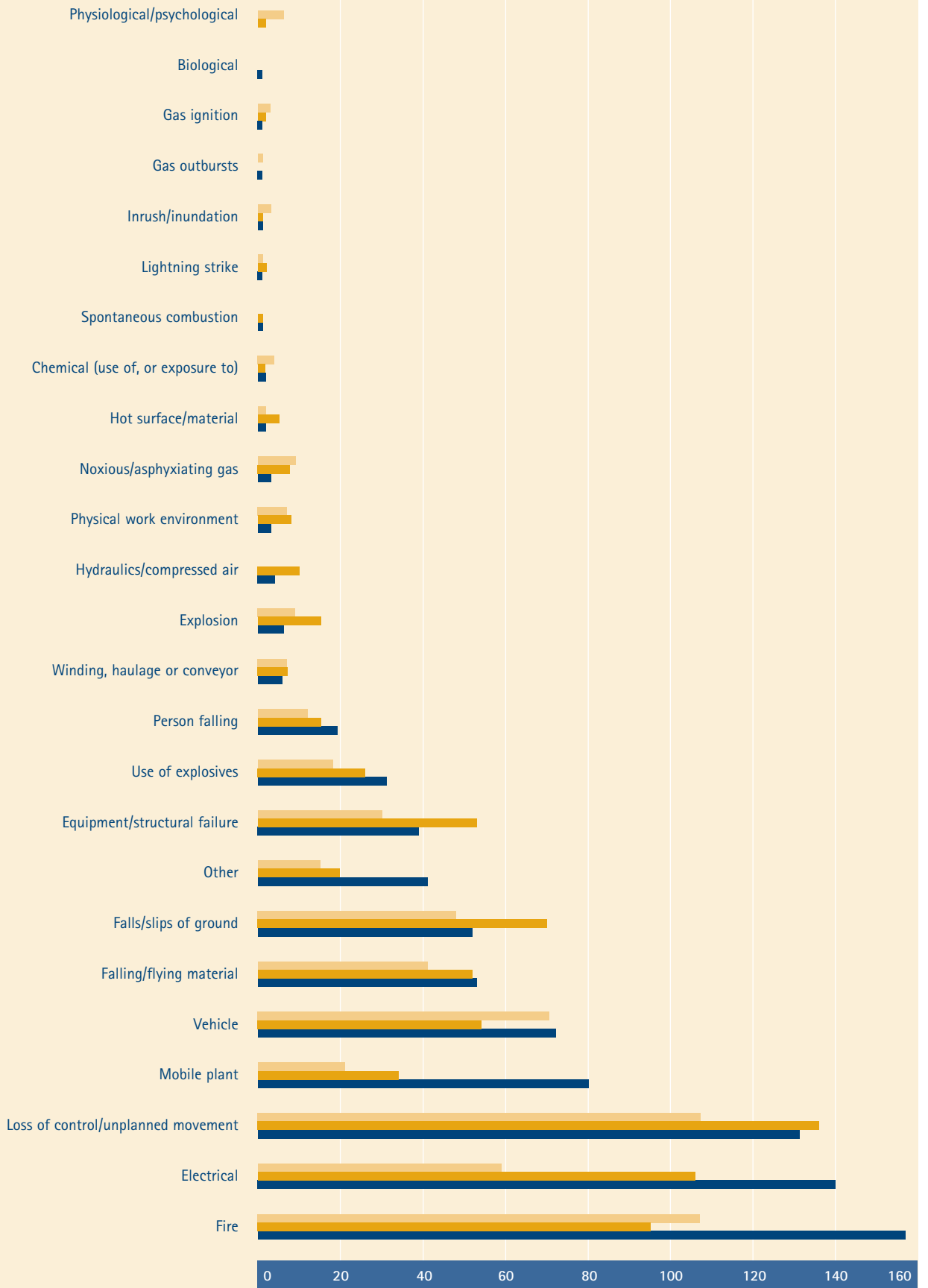
- Fires were the most common incident reported. Most were associated with vehicles and often resulted from oil (engine, transmission or hydraulic) spraying onto exhausts, engines, etc.
- Falls/slips of ground were the second-most-reported incident. There were several rock falls, ranging from small ones to falls of over 40 tonnes.
- Several electrical incidents stemming from the maintenance of equipment were reported.

#### **Quarries**

- Vehicle incidents remain the most commonly reported.
- Falling/flying material was the second-most-common incident type. Two cases involved hammers: in one, the head of a sledge hammer came off the handle and hit a worker on the chin; in the other, a worker was struck by a steel splinter while using a hammer to remove a retaining pin.
- Two misfires were reported. One involved a subsequent refiring that resulted in two drilling rigs being damaged.

**FIGURE 2 High potential incidents in the Queensland mining industry 2005–06**

2003–04 2004–05 2005–06  
In ascending order of 2005–06 data



## Performance indicators

Aggregated data for the past five years, including performance indicators, are shown in tables 2 and 3. Data for mines within the various sectors are shown in sections 2 to 6.

Changes in lost time injury frequency rates, severity rates and disabling injury frequency rates at individual mines or operations between 2003–04 and 2005–06 are included (see the first three figures in sections 2 to 6). Please note that fatalities are assigned a value of 220 days lost.

Long-term trends by mining sector are shown as the number of employees versus the number of lost time injuries (figures 3 to 5), lost time injury frequency rates (figure 6) and severity rates (figure 7). Injury data is further analysed by combining all sectors to provide graphs and tables showing the distribution of injuries by body parts injured, nature of injury, mechanism of injury, breakdown agency, classification of injuries and causal factors (figures 8 to 16). The statistics have been proportionately similar from year to year. They also show similar patterns from sector to sector, suggesting that solutions identified in one sector may be transferable to the others.

With the continuing reduction in lost time injuries, analyses of disabling injuries and high potential incidents are included for each sector, to give a broader perspective of overall safety performance.

The dominant position of Mount Isa Mines (MIM) in the metalliferous sector tends to strongly influence industry trends. For this reason and others, MIM data is reported separately. This allows smaller mine operators to compare their performance against that of similar sized operations.

## National Mine Safety Framework strategy—data collection

A review of performance indicators is being undertaken as part of the National Mine Safety Framework. Part of the review concerns data collection, analyses and reporting. A committee representing most state jurisdictions has prepared a draft report which will be distributed for comment. The report suggests how safety performance data collected across all states and territories could be pooled and used to help further improve safety outcomes in Australia's mining industry.

## Access to the Lost Time Accident Database

Industry has access to selected data from the Mines Inspectorate's Lost Time Accident Database, which was used in the compilation of this report. Individual mine operators can obtain their data and sector-wide data.

Mine operators can also use this data as a benchmark in the preparation of their safety management systems. (The Inspectorate uses the data when planning audit programs.)

Interested parties should contact the Mines Inspectorate at the nearest regional office:

- Brisbane (Head Office):  
(07) 3237 1041
- Woolloongabba  
(South East Region):  
(07) 3238 3722
- Rockhampton  
(Central West Region):  
(07) 4938 4187
- Mackay (Central West Region):  
(07) 4967 0860
- Townsville (North Region):  
(07) 4760 7404
- Atherton (North Region):  
(07) 4095 7023
- Mount Isa (North Region):  
(07) 4747 2158.

## Information requested from the database

Examples of database information requested by industry throughout the year include:

- Information on lost time injury frequency rates and disability frequency rates in Queensland coal mines—requested by a coal operation, to compare their performance against the rest of Queensland.
- The number of high potential incidents (HPIs) and lost time injuries relating to the operation and/or maintenance of large surface mobile equipment—requested by a university researcher.
- The number and causes of fatalities in Queensland mines—requested by a Commonwealth government department.
- Information on the number of machinery fires reported on open-cut mine sites—requested by a central Queensland coal mine as part of its risk assessment program.
- Information on injuries on mine sites involving confined spaces, falls from height and plant, machinery and vehicles—requested via the departmental web site.
- Information on HPIs and the causes—requested by a coal mine manager as part of his research into incidents on modern open-cut coal mines.
- Information on incidents stemming from waste dumping—requested by a government research officer.
- Information on injuries relating to mobile equipment—requested by a safety officer.

**TABLE 2 Historical data 2001–02 to 2005–06**

Number of lost time injuries	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	96	85	116	90	106
Coal – underground	112	82	91	87	101
Coal subtotal	208	167	207	177	207
Metalliferous – surface	106	78	65	53	44
Metalliferous – underground	64	60	51	31	36
Metalliferous subtotal	170	138	116	84	80
Quarries	25	19	20	17	21
<b>All operations</b>	<b>403</b>	<b>324</b>	<b>343</b>	<b>278</b>	<b>308</b>
Days lost	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	1 524	1 075	2 221	2 681	2 009
Coal – underground	1 743	1 243	1 501	1 405	2 863
Coal subtotal	3 267	2 318	3 722	4 086	4 872
Metalliferous – surface	1 066	1 124	918	981	657
Metalliferous – underground	970	1 448	970	930	679
Metalliferous subtotal	2 036	2 572	1 888	1 911	1 336
Quarries	398	217	115	348	144
<b>All operations</b>	<b>5 701</b>	<b>5 107</b>	<b>5 725</b>	<b>6 345</b>	<b>6 352</b>
Total hours worked (millions)	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	19.8	22.3	24.3	28.6	37.8
Coal – underground	6.2	6.0	6.5	7.3	8.4
Coal subtotal	25.9	28.4	30.9	35.9	46.2
Metalliferous – surface	13.3	14.3	14.5	14.2	15.3
Metalliferous – underground	6.9	7.0	7.4	8.0	9.3
Metalliferous subtotal	20.2	21.3	21.9	22.2	24.6
Quarries	2.2	2.4	2.7	2.7	2.7
<b>All operations</b>	<b>48.4</b>	<b>52.1</b>	<b>55.4</b>	<b>60.8</b>	<b>73.5</b>
Number of employees as at 30 June 2006	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	7 496	10 027	11 559	13 207	17 081
Coal – underground	2 551	2 667	3 712	3 579	4 319
Coal subtotal	10 047	12 694	15 271	16 786	21 400
Metalliferous – surface	5 451	5 367	4 822	5 585	6 261
Metalliferous – underground	2 605	2 729	3 158	3 775	4 243
Metalliferous subtotal	8 056	8 096	7 980	9 360	10 504
Quarries	854	1 051	1 201	1 234	1 228
<b>All operations</b>	<b>18 957</b>	<b>21 841</b>	<b>24 452</b>	<b>27 380</b>	<b>33 132</b>
Number of medical treatments	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	n.a.	406	350	254	384
Coal – underground	n.a.	408	440	238	374
Coal total	n.a.	814	790	492	758

continued over

n.a. = not available

**TABLE 2 Historical data 2001–02 to 2005–06 (continued)**

Number of disabling injuries	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	95	105	126	101	169
Coal – underground	248	236	194	154	236
Coal subtotal	343	341	320	255	405
Metalliferous – surface	128	142	102	36	40
Metalliferous – underground	149	144	124	91	65
Metalliferous subtotal	277	286	226	127	105
Quarries	0	1	1	2	5
<b>All operations</b>	<b>620</b>	<b>628</b>	<b>547</b>	<b>384</b>	<b>515</b>
Number of reported high potential incidents	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	190	201	232	290	451
Coal – underground	63	112	63	112	123
Coal subtotal	253	313	295	402	574
Metalliferous – surface	125	100	90	123	89
Metalliferous – underground	65	119	124	151	144
Metalliferous subtotal	190	219	214	274	233
Quarries	14	27	27	39	32
<b>All operations</b>	<b>457</b>	<b>559</b>	<b>536</b>	<b>715</b>	<b>839</b>
Number of permanent incapacity injuries	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	2	3	1	2	1
Coal – underground	3	0	0	1	1
Coal subtotal	5	3	1	3	2
Metalliferous – surface	1	2	1	0	1
Metalliferous – underground	1	0	1	0	0
Metalliferous subtotal	2	2	2	0	1
Quarries	0	0	1	0	1
<b>All operations</b>	<b>7</b>	<b>5</b>	<b>4</b>	<b>3</b>	<b>4</b>
Number of fatalities	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	1	0	0	0	2
Coal – underground	0	0	0	0	0
Coal subtotal	1	0	0	0	2
Metalliferous – surface	0	1	1	2	0
Metalliferous – underground	1	2	0	1	0
Metalliferous subtotal	1	3	1	3	0
Quarries	0	0	0	1	0
<b>All operations</b>	<b>2</b>	<b>3</b>	<b>1</b>	<b>4</b>	<b>2</b>

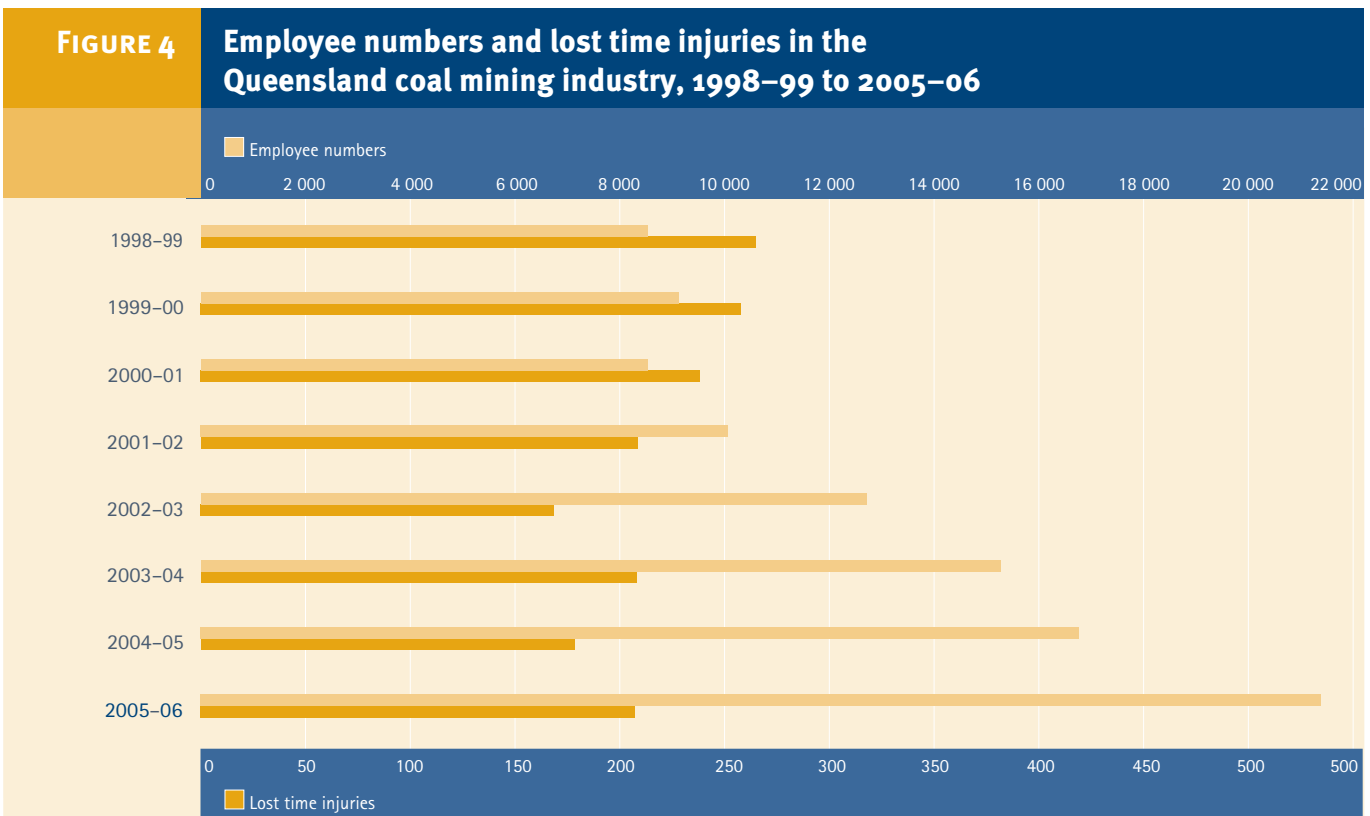
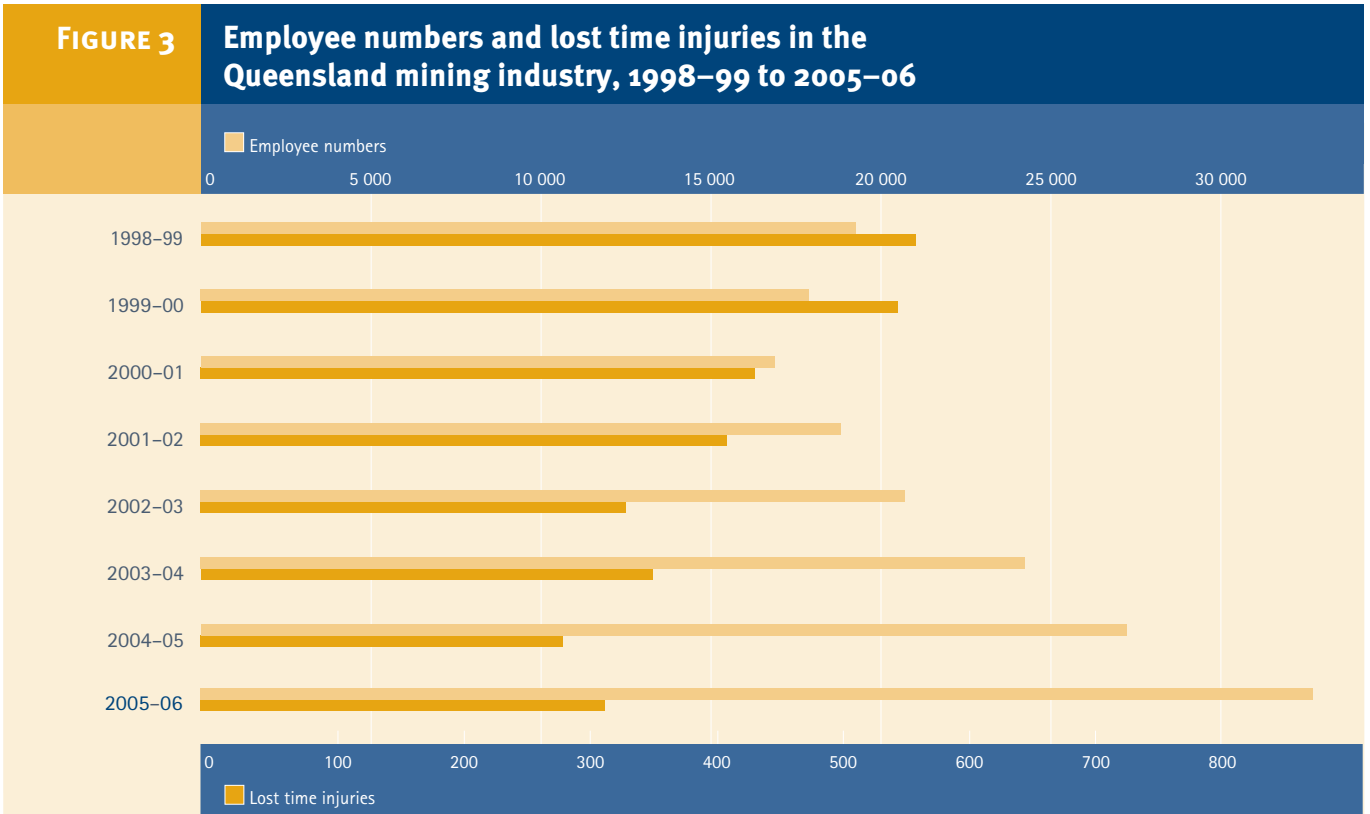
**TABLE 3 Performance indicators 2001–02 to 2005–06**

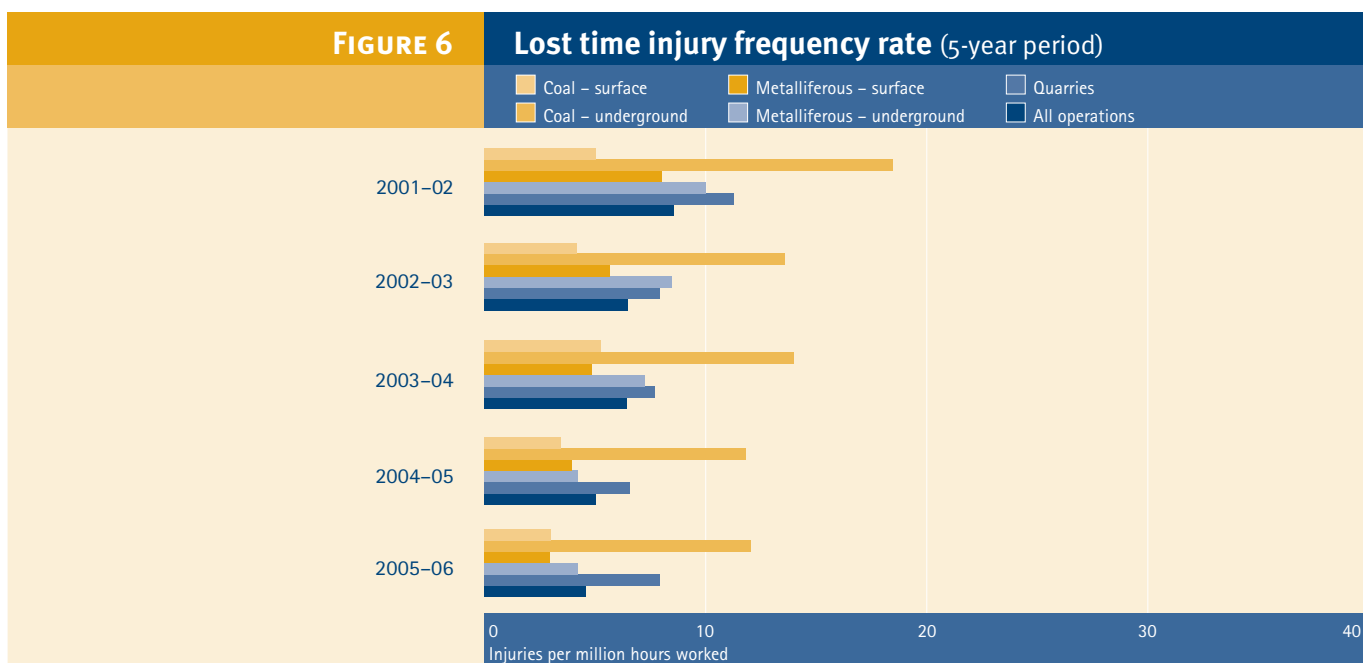
Lost time injury frequency rate	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	4.9	3.8	4.8	3.1	2.8
Coal – underground	18.2	13.6	13.9	11.8	12.1
Coal subtotal	8.0	5.9	6.7	4.9	4.5
Metalliferous – surface	8.0	5.4	4.5	3.7	2.9
Metalliferous – underground	9.2	8.6	6.9	3.9	3.9
Metalliferous subtotal	8.4	6.5	5.3	3.8	3.3
Quarries	11.3	8.0	7.4	6.3	7.8
<b>All operations</b>	<b>8.3</b>	<b>6.2</b>	<b>6.2</b>	<b>4.6</b>	<b>4.2</b>
Severity rate	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	77	48	91	94	53
Coal – underground	283	206	229	191	341
Coal subtotal	126	82	121	114	105
Metalliferous – surface	80	78	63	69	43
Metalliferous – underground	140	207	132	117	73
Metalliferous subtotal	101	120	86	86	54
Quarries	179	91	43	129	53
<b>All operations</b>	<b>118</b>	<b>98</b>	<b>103</b>	<b>104</b>	<b>86</b>
Duration rate	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	15.9	12.6	19.1	29.8	19.0
Coal – underground	15.6	15.2	16.5	16.1	28.3
Coal subtotal	15.7	13.9	18.0	23.1	23.5
Metalliferous – surface	10.1	14.4	14.1	18.5	14.9
Metalliferous – underground	15.2	24.1	19.0	30.0	18.9
Metalliferous subtotal	12.0	18.6	16.3	22.8	16.7
Quarries	15.9	11.4	5.8	20.5	6.9
<b>All operations</b>	<b>14.1</b>	<b>15.8</b>	<b>16.7</b>	<b>22.8</b>	<b>20.6</b>
Lost time injuries per million tonnes	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	1	1	1	0.5	0.5
Coal – underground	3	2	3	3	3
Coal total	2	1	1	1	1

continued over

**TABLE 3 Performance indicators 2001–02 to 2005–06 (continued)**

Disabling injury frequency rate (disabling injuries per million hours worked)	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	4.8	4.7	5.2	3.5	4.5
Coal – underground	40.3	39.2	29.6	21.0	28.1
Coal subtotal	13.2	12.0	10.4	7.1	8.8
Metalliferous – surface	9.6	9.9	7.0	2.5	2.6
Metalliferous – underground	21.5	20.6	16.8	11.4	7.0
Metalliferous subtotal	13.7	13.4	10.3	5.7	4.2
Quarries	0.0	0.4	0.4	0.7	1.9
<b>All operations</b>	<b>12.8</b>	<b>12.1</b>	<b>9.9</b>	<b>6.3</b>	<b>7.0</b>
Permanent incapacity frequency rate (permanent incapacities per million hours worked)	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	0.10	0.13	0.04	0.07	0.03
Coal – underground	0.49	0.00	0.00	0.14	0.12
Coal subtotal	0.19	0.11	0.03	0.08	0.04
Metalliferous – surface	0.08	0.14	0.07	0.00	0.06
Metalliferous – underground	0.14	0.00	0.14	0.00	0.00
Metalliferous subtotal	0.10	0.09	0.09	0.00	0.04
Quarries	0.00	0.00	0.37	0.00	0.37
<b>All operations</b>	<b>0.14</b>	<b>0.10</b>	<b>0.07</b>	<b>0.05</b>	<b>0.05</b>
Fatal injury frequency rate (fatalities per million hours worked)	2001–02	2002–03	2003–04	2004–05	2005–06
Coal – surface	0.05	0.00	0.00	0.00	0.05
Coal – underground	0.00	0.00	0.00	0.00	0.00
Coal subtotal	0.04	0.00	0.00	0.00	0.04
Metalliferous – surface	0.00	0.07	0.07	0.14	0.00
Metalliferous – underground	0.14	0.29	0.00	0.13	0.00
Metalliferous subtotal	0.05	0.14	0.05	0.14	0.00
Quarries	0.00	0.00	0.00	0.37	0.00
<b>All operations</b>	<b>0.04</b>	<b>0.06</b>	<b>0.02</b>	<b>0.07</b>	<b>0.03</b>





### Statistical analyses of information from the database

The collection and analysis of accident information (dating back to 1983 for coal mines, and 1991 for metalliferous mines) allows any trends, patterns and other safety performance issues to be identified. Partial trend analyses of lost time injury frequency rates and severity rates are shown in figures 6 and 7.

Tables 4 to 7 show the causal factors of high potential incidents for the period 01/07/02 to 30/06/06. The causal factors fall under four broad categories:

- Organisational
- Individual/team
- Task/environment
- Absent/failed defences.

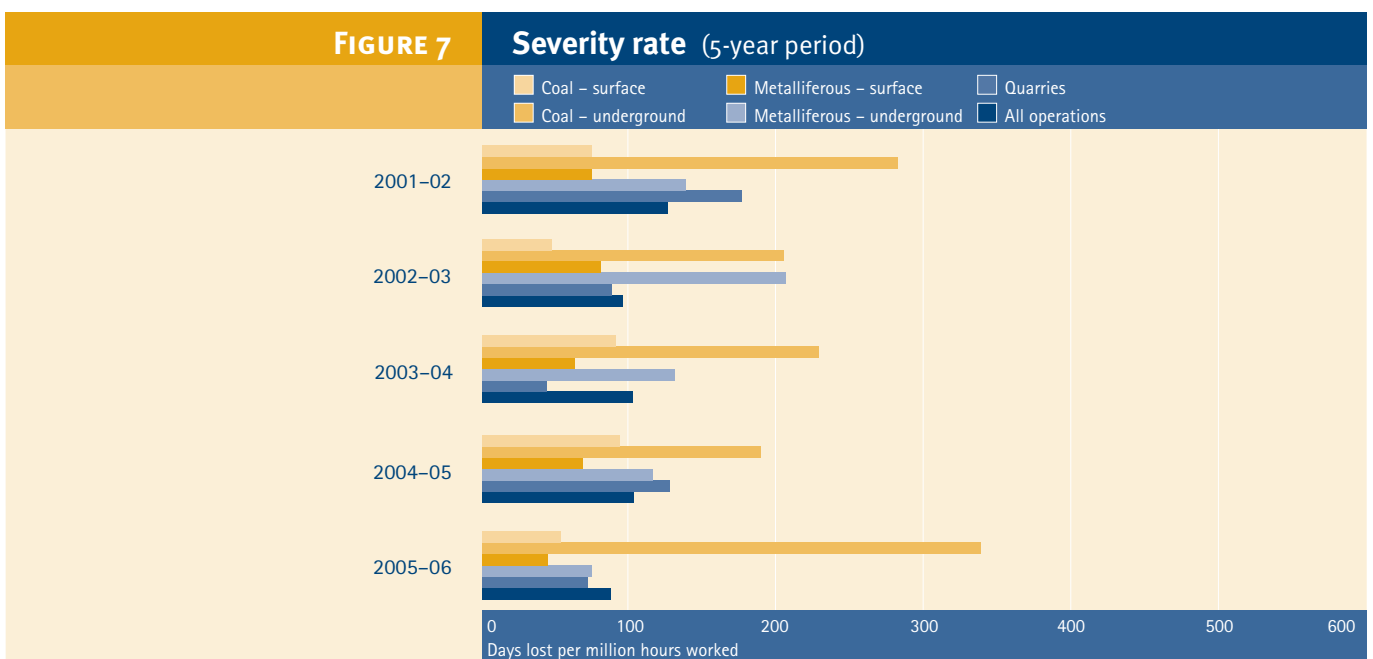
In the tables, the three most common causal factors are highlighted for each category.

**Organisational:** table 4 shows that, of the identified causal factors (excluding ‘no factor’, ‘other’ and ‘unspecified factor’), ‘procedures’, ‘design’ and ‘maintenance management’ are the most common across all incident types.

**Individual/team:** table 5 shows that, of the identified causal factors (excluding ‘no factor’, ‘other’ and ‘unspecified factor’), ‘awareness’, ‘communication’ and ‘ability’ are the most common across all incident types.

**Task/environment:** table 6 shows that, of the identified causal factors (excluding ‘no factor’, ‘other’ and ‘unspecified factor’), ‘procedures’, ‘equipment design/construction’ and ‘work surface/space’ are the most common across all incident types.

**Absent/failed defence:** table 7 shows that, of the identified causal factors (excluding ‘no factor’, ‘other’ and ‘unspecified factor’), ‘design defects’, ‘failure/breakdown of equipment’ and ‘inappropriate/inadequate safety features’ are the most common across all incident types.



**Table 4 Organisational causal factors associated with high potential incidents (HPIs), 01/07/02–30/06/06**

Incident Type	Number of HPIs	% of all HPIs		Organisational causal factors (%)			
				Communication	Defences	Design	Error enforcing conditions
Loss of control/unplanned movement	476	17.1%	↔	9% →	5% →	13% →	8% →
Fire	452	16.3%	↔	3%	7%	14%	3%
Electrical	399	14.4%	↔	8%	7%	11%	7%
Vehicle	292	10.5%	↔	18%	5%	9%	10%
Falls/slips of ground	224	8.1%	↔	8%	13%	11%	7%
Falling/flying material	192	6.9%	↔	9%	11%	14%	6%
Equipment/structural failure	147	5.3%	↔	5%	7%	16%	2%
Mobile plant	147	5.3%	↔	21%	4%	9%	5%
Other	93	3.3%	↔	16%	4%	10%	5%
Use of explosives	88	3.2%	↔	17%	6%	3%	6%
Person falling	61	2.2%	↔	9%	6%	11%	8%
Explosion	39	1.4%	↔	14%	7%	4%	14%
Winding, haulage or conveyor	35	1.3%	↔	16%	6%	6%	6%
Noxious/asphyxiating gas	25	0.9%	↔	6%	8%	8%	11%
Hydraulics/compressed air	24	0.9%	↔	6%	6%	12%	6%
Physical work environment	20	0.7%	↔	7%	3%	14%	3%
Physiological/psychological	16	0.6%	↔	13%	0%	6%	6%
Inrush/inundation	10	0.4%	↔	7%	27%	27%	0%
Chemical (use of, or exposure to)	10	0.4%	↔	0%	0%	17%	0%
Hot surface/material	10	0.4%	↔	0%	7%	21%	0%
Gas ignition	8	0.3%	↔	0%	0%	30%	0%
Lightning strike	4	0.1%	↔	40%	20%	20%	20%
Biological	3	0.1%	↔	33%	0%	33%	0%
Gas outbursts	2	0.1%	↔	0%	33%	0%	0%
Spontaneous combustion	2	0.1%	↔	0%	0%	0%	50%
<b>Total</b>	<b>2779</b>	<b>100%</b>		<b>10%</b>	<b>7%</b>	<b>12%</b>	<b>6%</b>

<span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid #000;"></span> Most common factor <span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid #000;"></span> 2nd most common factor <span style="display: inline-block; width: 15px; height: 10px; background-color: #cfe2f3; border: 1px solid #000;"></span> 3rd most common factor										
Hardware	Housekeeping	Incompatible goals	Maintenance management	No organisational factor	Organisation	Organisational factor – not specified	Other Organisational factor	Procedures	Training	Total
2% →	1% →	2% →	9% →	10% →	3% →	2% →	1% →	23% →	12% →	100%
2%	6%	0%	27%	18%	2%	4%	1%	10%	2%	100%
5%	4%	2%	13%	9%	3%	2%	1%	22%	6%	100%
1%	1%	1%	7%	10%	3%	1%	1%	21%	11%	100%
0%	1%	1%	3%	23%	4%	6%	2%	17%	3%	100%
3%	6%	1%	11%	4%	4%	2%	0%	22%	6%	100%
11%	3%	1%	21%	12%	2%	3%	1%	13%	5%	100%
0%	0%	5%	2%	7%	5%	2%	3%	25%	11%	100%
1%	1%	2%	4%	11%	7%	4%	0%	23%	10%	100%
3%	7%	2%	1%	7%	2%	2%	2%	36%	6%	100%
1%	6%	2%	7%	14%	2%	4%	1%	21%	7%	100%
0%	2%	2%	7%	7%	4%	2%	0%	26%	12%	100%
2%	4%	0%	12%	8%	2%	6%	0%	22%	8%	100%
0%	0%	3%	8%	11%	0%	6%	6%	28%	6%	100%
6%	3%	0%	6%	6%	0%	6%	0%	33%	9%	100%
0%	7%	0%	7%	17%	3%	3%	0%	28%	7%	100%
0%	6%	0%	0%	38%	0%	6%	6%	13%	6%	100%
0%	0%	0%	7%	7%	0%	0%	0%	20%	7%	100%
0%	0%	0%	8%	0%	0%	17%	0%	42%	17%	100%
7%	7%	0%	7%	14%	7%	0%	0%	21%	7%	100%
0%	0%	0%	0%	20%	0%	10%	0%	30%	10%	100%
0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
0%	0%	0%	0%	33%	0%	0%	0%	0%	0%	100%
0%	0%	0%	0%	33%	33%	0%	0%	0%	0%	100%
0%	0%	0%	0%	50%	0%	0%	0%	0%	0%	100%
3%	3%	2%	11%	12%	3%	3%	1%	20%	8%	100%

**Table 5 Individual/team causal factors associated with high potential incidents (HPIs), 01/07/02–30/06/06**

Incident Type	Number of HPIs	% of all HPIs		Individual/team causal factors (%)			
				Ability	Attitude	Awareness	Communication
Loss of control/unplanned movement	476	17.1%	↔	12% →	8% →	36% →	11% →
Fire	452	16.3%	↔	6%	2%	33%	3%
Electrical	399	14.4%	↔	7%	6%	41%	10%
Vehicle	292	10.5%	↔	8%	9%	41%	17%
Falls/slips of ground	224	8.1%	↔	4%	3%	36%	8%
Falling/flying material	192	6.9%	↔	7%	7%	45%	9%
Equipment/structural failure	147	5.3%	↔	3%	2%	36%	8%
Mobile plant	147	5.3%	↔	9%	8%	39%	20%
Other	93	3.3%	↔	10%	10%	34%	16%
Use of explosives	88	3.2%	↔	3%	7%	41%	20%
Person falling	61	2.2%	↔	6%	13%	59%	8%
Explosion	39	1.4%	↔	14%	8%	32%	6%
Winding, haulage or conveyor	35	1.3%	↔	9%	11%	25%	14%
Noxious/asphyxiating gas	25	0.9%	↔	3%	6%	43%	11%
Hydraulics/compressed air	24	0.9%	↔	7%	3%	59%	7%
Physical work environment	20	0.7%	↔	10%	13%	39%	10%
Physiological/psychological	16	0.6%	↔	0%	17%	50%	0%
Inrush/inundation	10	0.4%	↔	7%	7%	36%	21%
Chemical (use of, or exposure to)	10	0.4%	↔	0%	0%	27%	18%
Hot surface/material	10	0.4%	↔	8%	8%	38%	0%
Gas ignition	8	0.3%	↔	0%	0%	33%	11%
Lightning strike	4	0.1%	↔	0%	0%	40%	40%
Biological	3	0.1%	↔	0%	0%	67%	0%
Gas outbursts	2	0.1%	↔	0%	50%	0%	0%
Spontaneous combustion	2	0.1%	↔	0%	0%	0%	0%
<b>Total</b>	<b>2779</b>	<b>100%</b>		<b>8%</b>	<b>6%</b>	<b>38%</b>	<b>11%</b>

<span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid #000; margin-right: 5px;"></span> Most common factor <span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid #000; margin-left: 15px; margin-right: 5px;"></span> 2nd most common factor <span style="display: inline-block; width: 15px; height: 10px; background-color: #a6c9ec; border: 1px solid #000; margin-left: 15px; margin-right: 5px;"></span> 3rd most common factor								
Fatigue	Indiv./team factor not spec.	No indiv./team factor involved	Other indiv./team factor	Physiology	Psychology	Supervision	Teamwork	Total
3% →	6% →	13% →	4% →	0% →	1% →	5% →	2% →	100%
0%	7%	39%	3%	0%	0%	4%	2%	100%
1%	5%	13%	4%	1%	1%	9%	3%	100%
3%	7%	6%	2%	0%	1%	4%	3%	100%
0%	4%	30%	4%	0%	0%	10%	2%	100%
1%	3%	15%	2%	0%	0%	8%	3%	100%
1%	9%	26%	6%	0%	0%	6%	3%	100%
2%	2%	5%	1%	0%	1%	8%	4%	100%
1%	7%	7%	4%	1%	0%	7%	2%	100%
0%	5%	8%	3%	0%	1%	13%	0%	100%
0%	3%	3%	1%	0%	0%	5%	3%	100%
4%	2%	18%	4%	0%	0%	6%	6%	100%
0%	5%	25%	2%	0%	0%	9%	0%	100%
0%	3%	20%	3%	0%	3%	9%	0%	100%
0%	10%	3%	0%	0%	0%	10%	0%	100%
0%	13%	10%	3%	0%	0%	0%	3%	100%
6%	11%	11%	0%	6%	0%	0%	0%	100%
0%	0%	14%	0%	0%	0%	14%	0%	100%
0%	18%	9%	27%	0%	0%	0%	0%	100%
0%	8%	23%	0%	0%	0%	15%	0%	100%
0%	11%	33%	0%	0%	0%	11%	0%	100%
0%	0%	20%	0%	0%	0%	0%	0%	100%
0%	0%	33%	0%	0%	0%	0%	0%	100%
0%	0%	50%	0%	0%	0%	0%	0%	100%
0%	0%	50%	50%	0%	0%	0%	0%	100%
1%	5%	17%	3%	0%	0%	7%	2%	100%

**Table 6 Task/environment causal factors associated with high potential incidents (HPIs), 01/07/02–30/06/06**

Incident Type	Number of HPIs	% of all HPIs		Task/environment causal factors (%)						
				Acceleration/ deceleration	Air/ liquid pressure	Contaminants	Electricity	Equipment design/ construction	Illumination	No task/ environment factor
Loss of control/unplanned movement	476	17.1%	↔	7% →	1% →	1% →	1% →	13% →	2% →	12% →
Fire	452	16.3%	↔	1%	6%	6%	6%	17%	1%	21%
Electrical	399	14.4%	↔	0%	0%	1%	29%	11%	2%	11%
Vehicle	292	10.5%	↔	4%	1%	3%	1%	6%	6%	11%
Falls/slips of ground	224	8.1%	↔	1%	6%	0%	0%	3%	1%	7%
Falling/flying material	192	6.9%	↔	2%	0%	2%	0%	17%	1%	11%
Equipment/structural failure	147	5.3%	↔	1%	2%	5%	1%	22%	3%	17%
Mobile plant	147	5.3%	↔	3%	1%	1%	1%	5%	8%	11%
Other	93	3.3%	↔	0%	4%	0%	3%	13%	2%	14%
Use of explosives	88	3.2%	↔	0%	1%	5%	1%	4%	4%	22%
Person falling	61	2.2%	↔	1%	1%	0%	1%	13%	3%	19%
Explosion	39	1.4%	↔	0%	10%	21%	5%	7%	0%	12%
Winding, haulage or conveyor	35	1.3%	↔	3%	0%	3%	3%	26%	5%	26%
Noxious/asphyxiating gas	25	0.9%	↔	0%	4%	33%	0%	4%	0%	19%
Hydraulics/compressed air	24	0.9%	↔	0%	43%	0%	0%	7%	0%	13%
Physical work environment	20	0.7%	↔	0%	0%	0%	0%	8%	0%	8%
Physiological/psychological	16	0.6%	↔	0%	0%	0%	0%	0%	0%	18%
Inrush/inundation	10	0.4%	↔	0%	0%	0%	0%	9%	0%	18%
Chemical (use of, or exposure to)	10	0.4%	↔	0%	0%	40%	0%	10%	0%	0%
Hot surface/material	10	0.4%	↔	0%	8%	8%	8%	17%	0%	0%
Gas ignition	8	0.3%	↔	0%	0%	11%	0%	11%	0%	0%
Lightning strike	4	0.1%	↔	25%	0%	0%	50%	0%	0%	0%
Biological	3	0.1%	↔	0%	0%	0%	0%	0%	0%	25%
Gas outbursts	2	0.1%	↔	0%	33%	0%	0%	0%	0%	0%
Spontaneous combustion	2	0.1%	↔	0%	0%	0%	0%	0%	0%	0%
<b>Total</b>	<b>2779</b>	<b>100%</b>		<b>3%</b>	<b>3%</b>	<b>3%</b>	<b>6%</b>	<b>12%</b>	<b>2%</b>	<b>14%</b>

<span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid #000;"></span> Most common factor <span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid #000; margin-left: 10px;"></span> 2nd most common factor <span style="display: inline-block; width: 15px; height: 10px; background-color: #a4c6e0; border: 1px solid #000; margin-left: 10px;"></span> 3rd most common factor													Total
Noise	Other task/ environment factor	Precipitation	Procedures	Radiation	Repetitive operation	Task/environment factor - not specified	Temperature/ humidity	Unstable strata	Vibration	Wildlife	Wind/ turbulence	Work surface/ space	Total
0%	10%	4%	15%	0.2%	3%	9%	1%	2%	1%	0%	0%	19%	100%
0%	6%	1%	9%	0.4%	2%	9%	5%	0.4%	4%	0%	2%	4%	100%
0%	5%	6%	15%	0.0%	2%	7%	3%	2%	1%	0.4%	1%	5%	100%
0%	9%	5%	18%	0.6%	2%	8%	2%	1%	0.9%	0.3%	1%	22%	100%
0%	5%	7%	7%	0%	0%	7%	0%	44%	8%	0%	1%	4%	100%
0%	7%	3%	19%	0%	3%	8%	1%	8%	4%	0%	1%	11%	100%
1%	7%	3%	14%	0%	4%	8%	1%	2%	6%	0%	1%	3%	100%
2%	6%	3%	18%	0%	8%	10%	1%	1%	1%	0%	1%	23%	100%
0%	11%	1%	25%	0%	0%	16%	1%	5%	0%	1%	0%	6%	100%
1%	10%	2%	27%	0%	1%	14%	0%	3%	0%	0%	1%	5%	100%
0%	6%	1%	16%	0%	3%	3%	1%	3%	1%	0%	0%	26%	100%
2%	5%	5%	21%	0%	0%	2%	5%	2%	0%	0%	0%	2%	100%
0%	3%	3%	21%	0%	3%	5%	0%	0%	0%	0%	0%	3%	100%
0%	15%	0%	15%	0%	4%	4%	0%	0%	0%	0%	0%	4%	100%
0%	3%	0%	20%	0%	0%	7%	0%	0%	0%	0%	0%	7%	100%
0%	15%	4%	27%	0%	15%	12%	0%	0%	0%	0%	0%	12%	100%
0%	6%	0%	29%	0%	12%	18%	0%	0%	0%	0%	0%	18%	100%
0%	0%	27%	45%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
0%	20%	0%	0%	0%	0%	10%	0%	10%	0%	0%	0%	10%	100%
0%	0%	0%	25%	0%	8%	0%	25%	0%	0%	0%	0%	0%	100%
0%	0%	0%	33%	0%	0%	22%	0%	0%	0%	0%	22%	0%	100%
0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
0%	25%	0%	25%	0%	0%	0%	0%	0%	0%	25%	0%	0%	100%
0%	0%	0%	33%	0%	0%	0%	33%	0%	0%	0%	0%	0%	100%
0%	100%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	100%
0%	6%	4%	17%	0.1%	2%	8%	2%	6%	2%	0.1%	1%	10%	100%

**Table 7 Absent/failed defences causal factors associated with high potential incidents (HPIs), 01/07/02–30/06/06**

Incident Type	Number of HPIs	% of all HPIs	Absent/failed defences causal factors (%)			
			Absent or non installation of safety devices	Absent/failed defence factor – not specified	Design defects	
Loss of control/unplanned movement	476	17.1%	↔	7% →	11% →	11% →
Fire	452	16.3%	↔	3%	7%	13%
Electrical	399	14.4%	↔	7%	13%	16%
Vehicle	292	10.5%	↔	6%	15%	8%
Falls/slips of ground	224	8.1%	↔	3%	20%	15%
Falling/flying material	192	6.9%	↔	10%	17%	14%
Equipment/structural failure	147	5.3%	↔	4%	6%	15%
Mobile plant	147	5.3%	↔	10%	22%	9%
Other	93	3.3%	↔	10%	14%	12%
Use of explosives	88	3.2%	↔	5%	23%	5%
Person falling	61	2.2%	↔	11%	12%	12%
Explosion	39	1.4%	↔	14%	17%	10%
Winding, haulage or conveyor	35	1.3%	↔	5%	15%	18%
Noxious/asphyxiating gas	25	0.9%	↔	6%	13%	13%
Hydraulics/compressed air	24	0.9%	↔	11%	15%	15%
Physical work environment	20	0.7%	↔	0%	24%	24%
Physiological/psychological	16	0.6%	↔	0%	6%	0%
Inrush/inundation	10	0.4%	↔	10%	0%	10%
Chemical (use of, or exposure to)	10	0.4%	↔	8%	0%	8%
Hot surface/material	10	0.4%	↔	0%	9%	27%
Gas ignition	8	0.3%	↔	22%	22%	11%
Lightning strike	4	0.1%	↔	25%	0%	0%
Biological	3	0.1%	↔	0%	33%	0%
Gas outbursts	2	0.1%	↔	0%	50%	0%
Spontaneous combustion	2	0.1%	↔	0%	0%	50%
<b>Total</b>	<b>2779</b>	<b>100%</b>		<b>6%</b>	<b>13%</b>	<b>13%</b>

<span style="display: inline-block; width: 15px; height: 10px; background-color: #e69d00; border: 1px solid #000;"></span> Most common factor <span style="display: inline-block; width: 15px; height: 10px; background-color: #f4a460; border: 1px solid #000;"></span> 2nd most common factor <span style="display: inline-block; width: 15px; height: 10px; background-color: #8eb9e2; border: 1px solid #000;"></span> 3rd most common factor						
Equipment failure to detect hazard	Failure/breakdown of equipment	Failure/breakdown of equipment (maintenance related)	Inappropriate/inadequate safety features	No absent/failed defence factor	Other absent/failed defence factor	Total
3% →	9% →	7% →	9% →	28% →	15% →	100%
6%	24%	16%	3%	19%	8%	100%
10%	8%	6%	11%	17%	11%	100%
3%	6%	4%	10%	32%	16%	100%
2%	3%	1%	8%	35%	13%	100%
4%	9%	6%	11%	20%	10%	100%
6%	30%	14%	2%	12%	11%	100%
2%	7%	2%	9%	30%	9%	100%
3%	5%	1%	9%	29%	18%	100%
0%	4%	1%	9%	30%	22%	100%
2%	8%	2%	11%	32%	11%	100%
5%	7%	10%	2%	26%	10%	100%
5%	5%	10%	10%	23%	10%	100%
6%	13%	10%	6%	13%	19%	100%
7%	7%	7%	15%	19%	4%	100%
0%	5%	0%	5%	29%	14%	100%
0%	0%	0%	0%	63%	31%	100%
0%	0%	10%	30%	20%	20%	100%
8%	42%	8%	8%	17%	0%	100%
9%	9%	0%	9%	27%	9%	100%
0%	11%	0%	11%	11%	11%	100%
0%	0%	0%	25%	25%	25%	100%
0%	0%	0%	33%	33%	0%	100%
0%	0%	0%	0%	50%	0%	100%
0%	0%	0%	0%	50%	0%	100%
5%	11%	7%	8%	25%	12%	100%

## Coal industry health report

Occupational health covers a wide range of activities, including fitness for duty, managing lost time due to illness and injury, and examining long-term occupational illnesses and their causes.

The general thrust of the mining safety and health legislation is that, under their obligations, employers are required to ensure their workers are not adversely affected by the work environment. Employers are required to have in place safety management systems to manage risks, safeguard workers and prevent injury and ill health caused by their working environment.

While the Department of Mines and Energy coordinates the development and administration of legislation, publishes statistics and brings industry together, employers are ultimately responsible for effective occupational health management on their mines and quarries.

The *Coal Mining Safety and Health Act 1999* allowed the establishment of the Coal Mine Workers' Health Scheme (as detailed in the *Coal Mining Safety and Health Regulation 2001*). The scheme requires persons entering the coal mining industry to undergo a health assessment by a nominated medical advisor prior to starting work; the health assessment reports are sent to the department for storage and analysis.

(The Mining and Quarrying Safety and Health Regulation 2001 provides for mine-based health surveillance to manage risks at metalliferous mines and quarries. Currently, metalliferous mines and quarries are not required to systematically report this surveillance data to the Department of Mines and Energy.)

### Coal mine health assessments

Because of the time lag between employees having health assessments and the entry of

data into the department's health database, health statistics from the database are reported from the previous calendar year. During 2005, 4809 people had initial health assessments under the Coal Mine Workers' Health Scheme—82 per cent more than in the previous year (table 8).

### Sickness, absenteeism and other lost time statistics

The Department of Mines and Energy compiles statistics on lost time due to sickness, injuries, unauthorised absence and other causes—based on monthly reports it receives from coal mines. These are shown in table 9.

**TABLE 8 Health assessments**

Year	2004	2005
Entrants	2 648	4 809
Periodic	1 124	2 355
Total	3 772	7 164

**TABLE 9 Distribution of lost time in coal mines**

	Surface		Underground	
	Hours	Per cent	Hours	Per cent
Injury/compensation	40 700	5.3	20 503	7.8
Sickness and medical	360 712	47.0	120 219	45.8
Unauthorised absence	25 690	3.4	2 341	0.9
Other	339 861	44.3	119 447	45.5
Total	766 963	100	262 510	100

## Workers' compensation data

The most recent mining industry injury compensation data available from the Queensland Office of Economic and Statistical Research covers 2004–05. The time lag is due to the time taken in submitting, assessing and paying compensation claims. The data includes compensation information provided by WorkCover Queensland and self-insurers. The data in this report has been aggregated for each of the coal, metalliferous and quarry sectors.

The number of claims and associated costs (table 10) for 2004–05 were:

- The coal sector incurred 782 claims costing \$6 million.
- The metalliferous sector incurred 471 claims costing \$5.6 million.
- The quarry sector incurred 63 claims costing \$400 000.

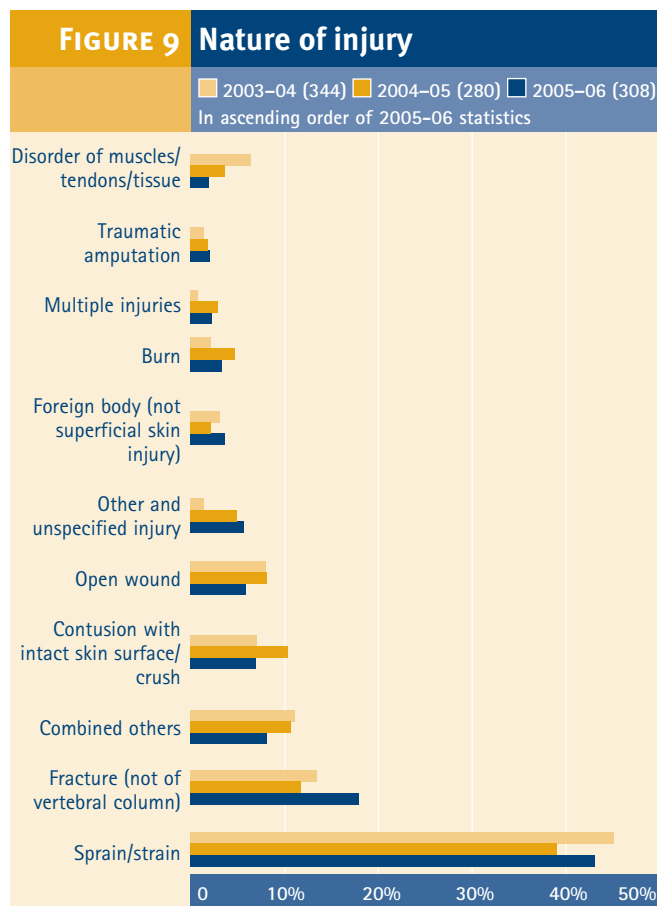
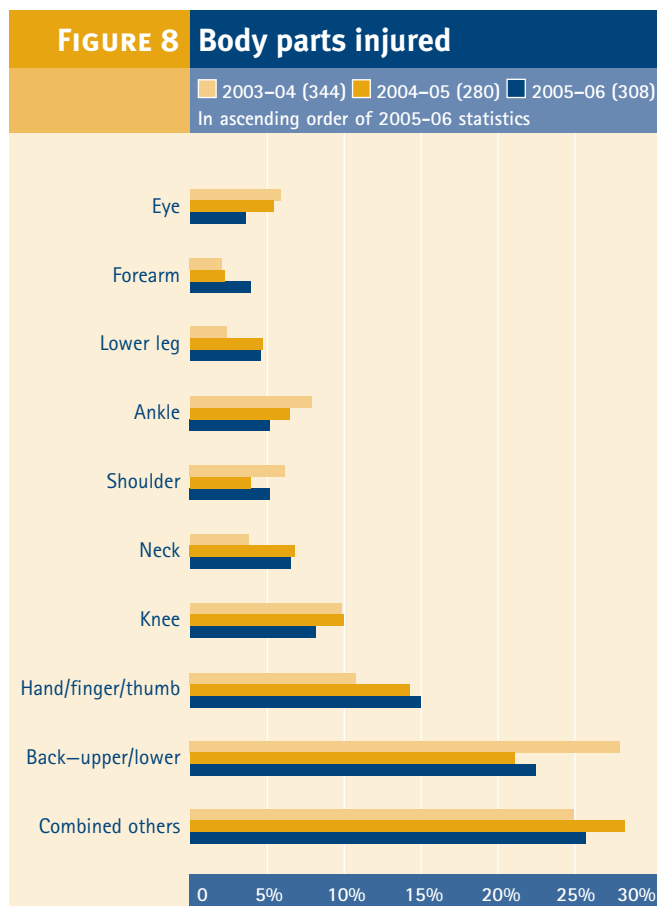
Across all sectors, sprains and strains were the most common (62 per cent) and costly injury. The most common occupational disease was hearing loss: 43 coal miners and 16 metalliferous/quarry miners were affected. Fractures had the highest average cost per claim for an occupational disorder—\$12 084—followed by traumatic amputation, including enucleation of the eye (loss of eyeball)—\$10 469.

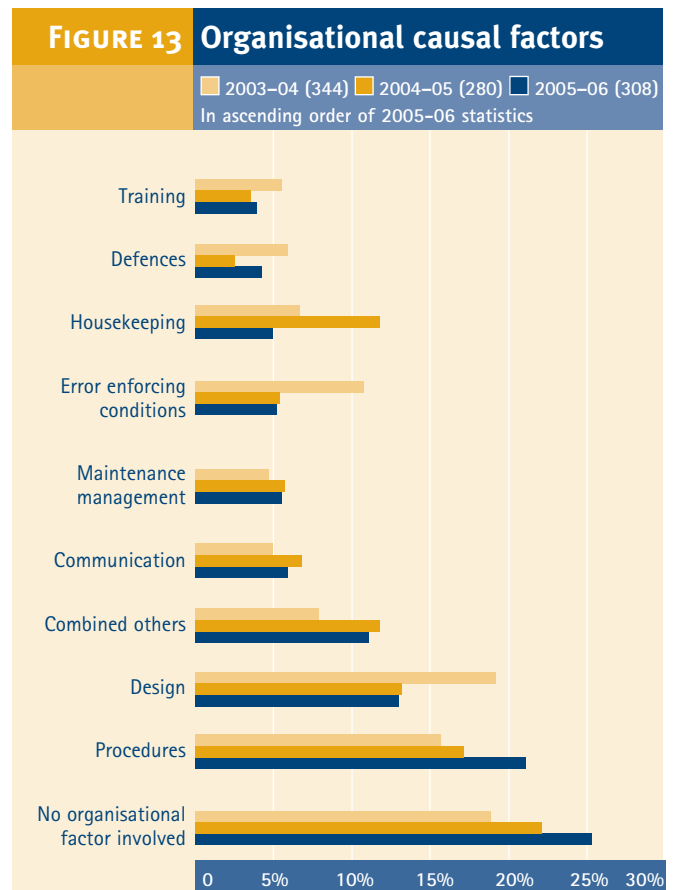
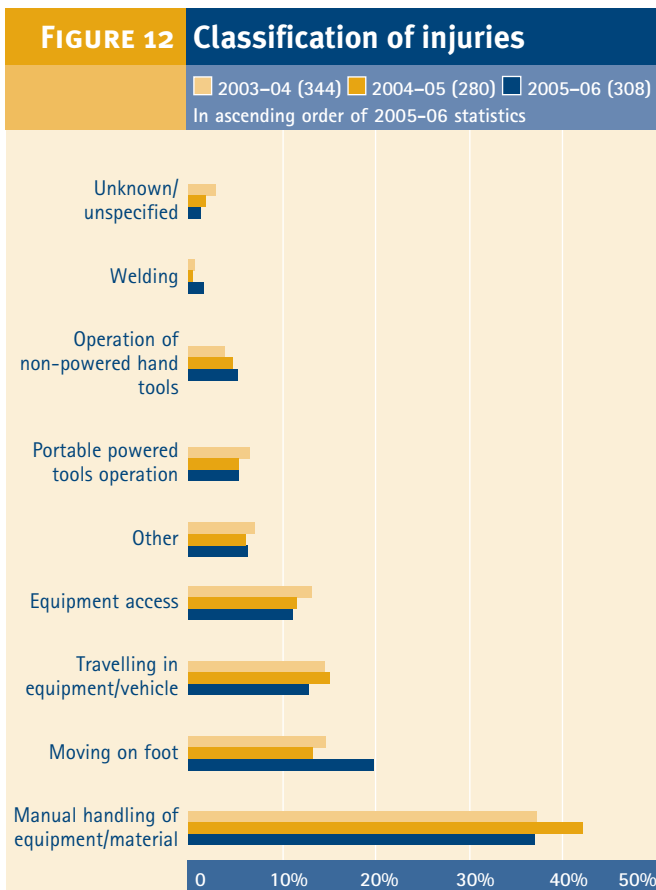
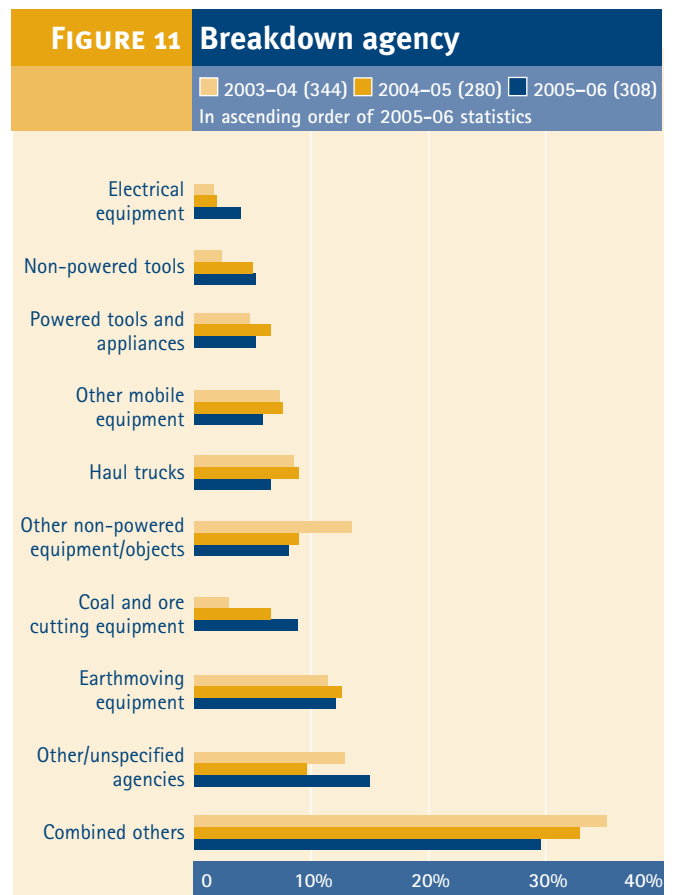
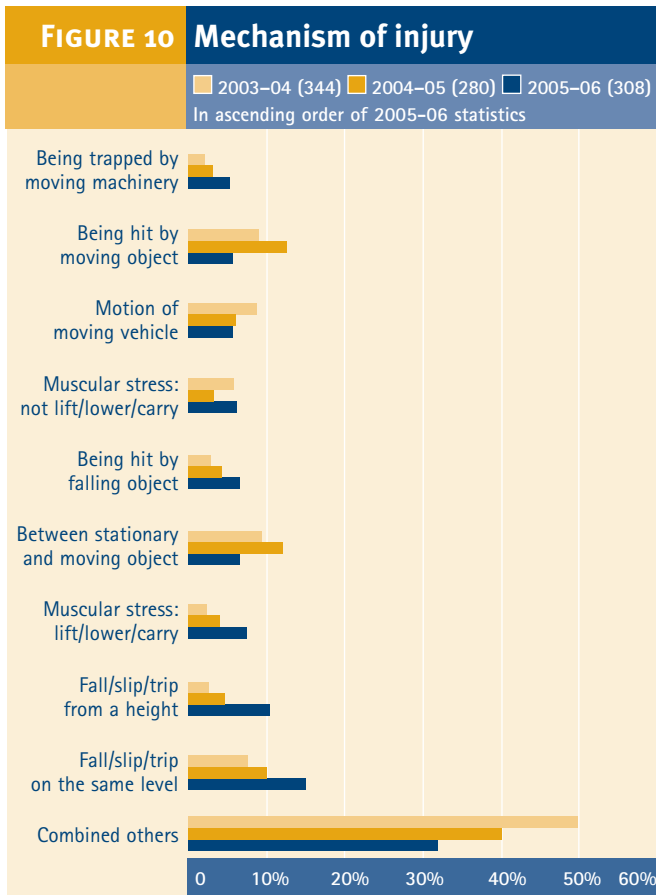
**TABLE 10 Workers' compensation costs 2004–05**

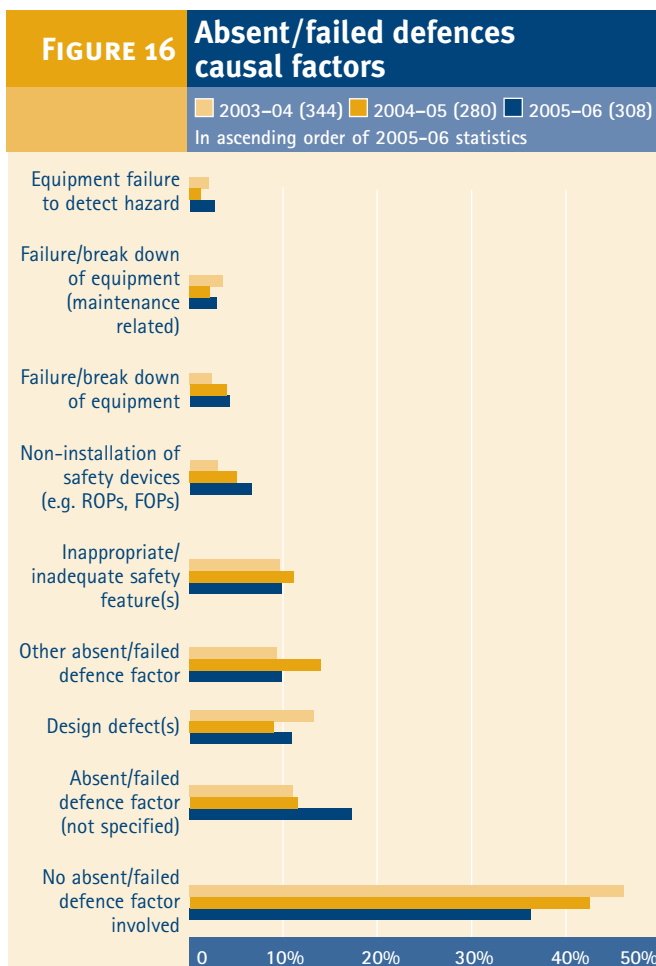
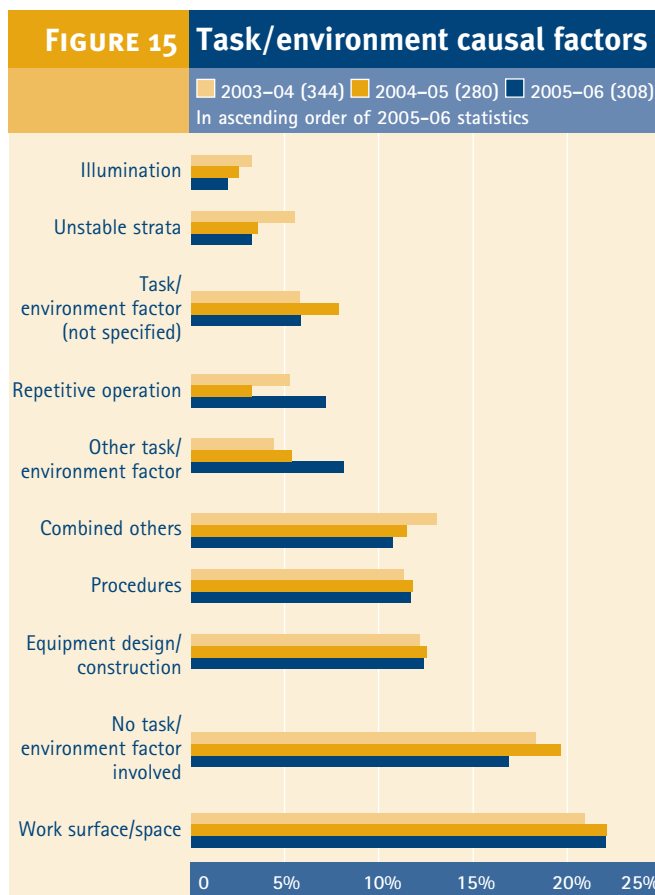
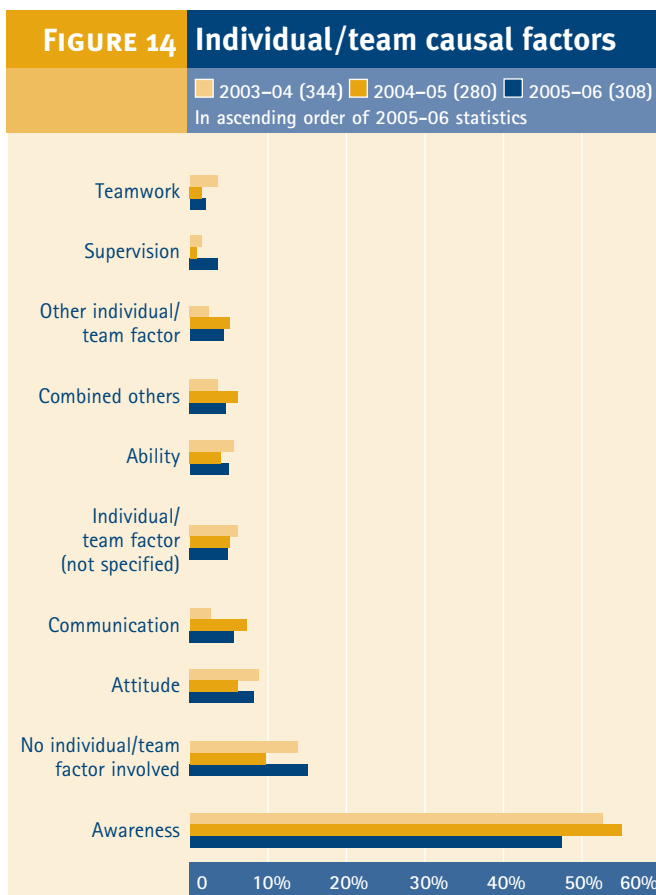
Injury		Coal sector	Metalliferous sector	Quarry sector	All	Cost per claim
Burns	Payment \$	2 850	197 980	3 072	203 902	\$8 156
	No. of claims	9	14	2	25	
Contusions	Payment \$	201 645	243 258	4 673	449 576	\$4 241
	No. of claims	69	29	8	106	
Deafness	Payment \$	195 223	70 013	45 065	310 301	\$5 259
	No. of claims	43	14	2	59	
Fractures	Payment \$	245 582	309 020	49 607	604 209	\$12 084
	No. of claims	27	19	4	50	
Open wound	Payment \$	95 201	104 960	1 953	104 960	\$4 771
	No. of claims	61	22	5	22	
Sprains and strains	Payment \$	4 343 442	3 206 175	253 963	7 803 580	\$9 505
	No. of claims	482	313	26	821	
Traumatic amputation, including enucleation of the eye (loss of eyeball)	Payment \$	15 863	18 431	18 049	52 343	\$10 469
	No. of claims	2	2	1	5	
Other	Payment \$	931 818	1 479 154	14 661	2 425 633	\$14 973
	No. of claims	89	58	15	162	
Total	Payment \$	6 031 624	5 628 991	391 043	12 051 658	\$9 158
	No. of claims	782	471	63	1 316	

# All sectors data

Figures 8 to 16 show the distribution of injuries by body parts injured; nature of injury; mechanism of injury; breakdown agency; and classification of injuries; as well as the organisational, task/environment, individual/team and absent/failed defence causal factors. These statistics have been proportionately similar from year to year. As the injury patterns across the sectors are also alike, the statistics from each sector (including the preceding two years) have been combined.







## 2. Surface coal mines

The following section is an analysis of lost time injuries on surface coal mines, as shown in tables 1, 2 and 3.

Compared with the previous year:

- The number of lost time injuries increased 18 per cent, from 90 to 106.
- The number of days lost decreased 25 per cent, from 2681 to 2009.
- The lost time injury frequency rate (LTIFR) decreased 10 per cent, from 3.1 to 2.8.
- The severity rate decreased 44 per cent, from 94 to 53.
- The duration rate decreased from 29.8 days to 19 days.
- The number of disabling injuries increased from 101 to 169.
- The number of high potential incidents increased from 290 to 451.

- The number of medical treatments reported was 384.

During the 2005–06 reporting period:

- Approximately 17 000 people were employed on surface coal mines (as at 30 June 2006).
- Thirty-eight surface coal mines were operating.
- Safety performance (as measured by LTIFR) improved at 15 mines.

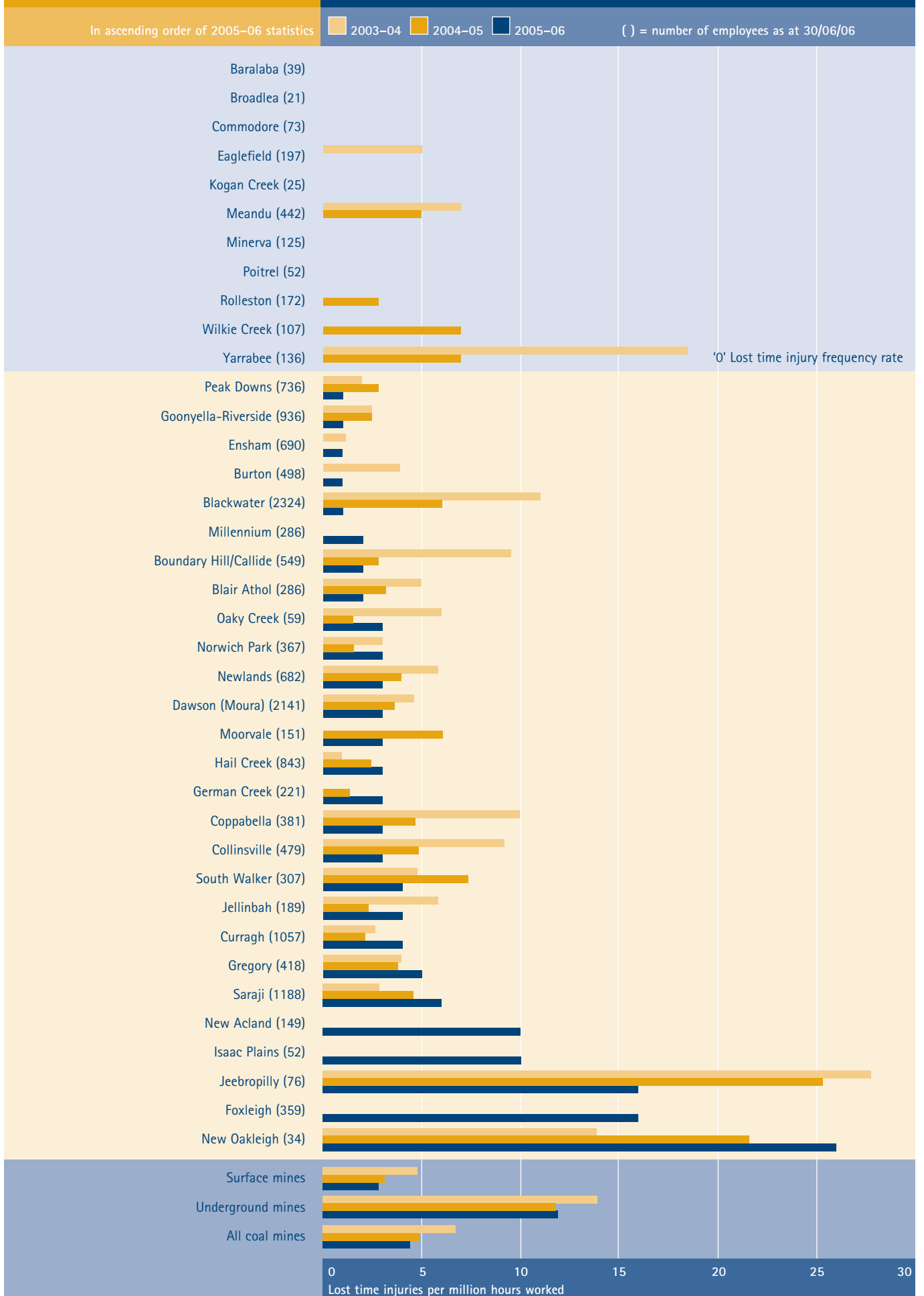
Table 11 and figures 17 to 19 show the performance of the various mines in the surface coal sector over the past three years.

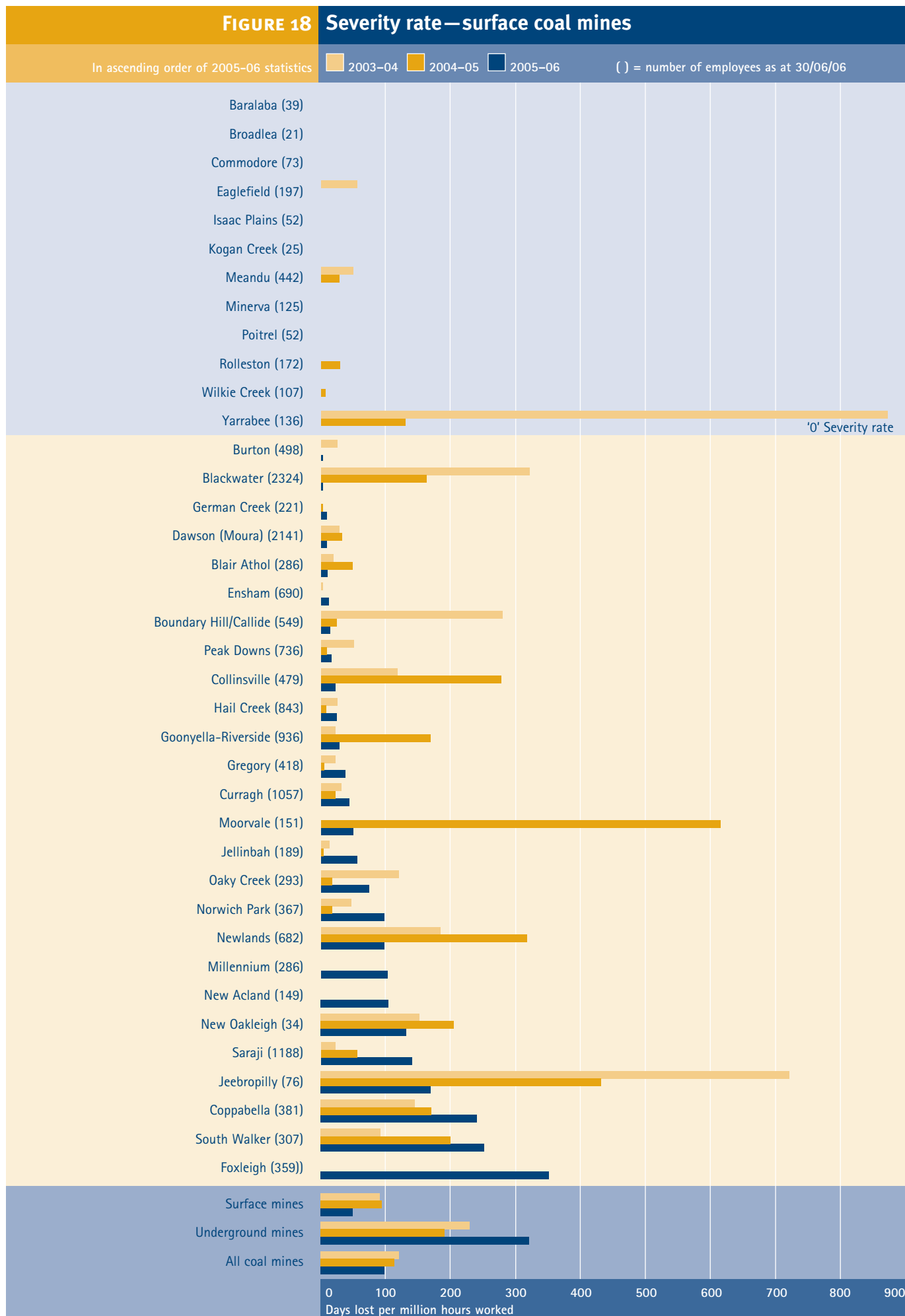
**TABLE 11 Surface coal mines injury statistics**

Mine	Number of injuries	Days lost	Million hours worked	Employees as at 30/06/06	Million tonnes produced	LTI frequency rate	Severity rate	Incidence rate	Duration rate	Injuries per million tonnes	Disabling injuries	High potential incidents	Medical treatments
Baralaba	0	0	0.0480	39	0.027	0	0	0	0	0	0	3	1
Blackwater	3	15	4.0553	2324	14.419	1	4	0	0	0	20	65	28
Blair Athol	1	7	0.6296	286	10.358	2	11	0	7	0	0	10	2
Boundary Hill/Caillide	4	23	1.6643	549	10.159	2	14	1	6	0	0	8	13
Broadlea	0	0	0.0427	21	*	0	0	0	0	0	1	0	0
Burton	1	1	1.1176	498	6.098	1	1	0	0	0	5	0	5
Collinsville	3	23	1.0516	479	6.856	3	22	1	8	0	0	1	6
Commodore	0	0	0.1405	73	3.555	0	0	0	0	0	0	0	2
Coppabella	3	230	0.9413	381	4.666	3	244	1	77	1	6	17	11
Curragh	9	96	2.0297	1057	11.237	4	47	1	11	1	19	31	17
Dawson (Moura)	8	27	2.8893	2141	7.712	3	9	0	3	1	26	40	25
Eaglefield	0	0	0.3892	197	1.920	0	0	0	0	0	1	3	2
Ensham	2	20	1.7261	690	8.034	1	12	0	0	0	8	7	5
Foxleigh	13	279	0.7937	359	2.199	16	352	4	0	6	9	24	38
German Creek	3	8	0.8995	221	3.007	3	9	1	3	1	0	6	9
Gooniyella-Riverside	4	140	3.9621	936	19.110	1	35	0	35	0	12	13	18
Gregory	3	26	0.6232	418	2.116	5	42	1	9	1	6	9	30
Hail Creek	4	38	1.5247	843	7.761	3	25	0	10	1	0	9	6
Isaac Plains	1	0	0.1030	52	*	10	0	2	0	0	0	0	0
Jeebropilly	3	32	0.1891	76	0.950	16	169	4	11	3	0	7	2
Jellinbah	2	27	0.4859	189	4.201	4	56	1	14	0	0	6	8
Kogan Creek	0	0	0.0000	25	*	0	0	0	0	0	0	0	0
Meandu	0	0	0.8942	442	8.557	0	0	0	0	0	0	12	4
Millennium	1	58	0.5714	286	*	2	102	0	58	0	0	10	20
Minerva	0	0	0.3782	125	0.960	0	0	0	0	0	0	2	3
Moorvale	1	16	0.3225	151	3.317	3	50	1	16	0	4	1	1
New Acland	3	30	0.2914	149	4.956	10	103	2	0	1	0	1	4
New Oakleigh	2	10	0.0757	34	0.762	26	132	6	5	3	0	2	0
Newlands	5	143	1.4651	682	6.644	3	98	1	29	1	11	43	3
Norwich Park	5	146	1.5084	367	7.558	3	97	1	29	1	6	12	4
Oaky Creek	2	53	0.7060	293	0.998	3	75	1	27	2	10	11	59
Peak Downs	2	32	2.0206	736	14.287	1	16	0	16	0	7	35	25
Poitrel	0	0	0.0346	52	*	0	0	0	0	0	0	1	0
Rolleston	0	0	0.4497	172	3.093	0	0	0	0	0	1	1	6
Saraji	15	347	2.5365	1188	8.270	6	137	1	23	2	12	47	15
South Walker	3	182	0.7229	307	4.405	4	252	1	61	1	3	2	9
Wilkie Creek	0	0	0.2402	107	2.679	0	0	0	0	0	2	7	0
Yarrabee	0	0	0.2989	136	1.738	0	0	0	0	0	0	5	3
<b>Total 2005–06</b>	<b>106</b>	<b>2 009</b>	<b>37.8227</b>	<b>17 081</b>	<b>192.609</b>	<b>2.8</b>	<b>53</b>	<b>0.6</b>	<b>19.0</b>	<b>0.6</b>	<b>169</b>	<b>451</b>	<b>384</b>
<b>Total 2004–05</b>	<b>90</b>	<b>2 681</b>	<b>28.5902</b>	<b>13 207</b>	<b>189.805</b>	<b>3.1</b>	<b>94</b>	<b>0.7</b>	<b>29.8</b>	<b>0.5</b>	<b>101</b>	<b>290</b>	<b>254</b>

\* In development stage

**FIGURE 17** Lost time injury frequency rate—surface coal mines



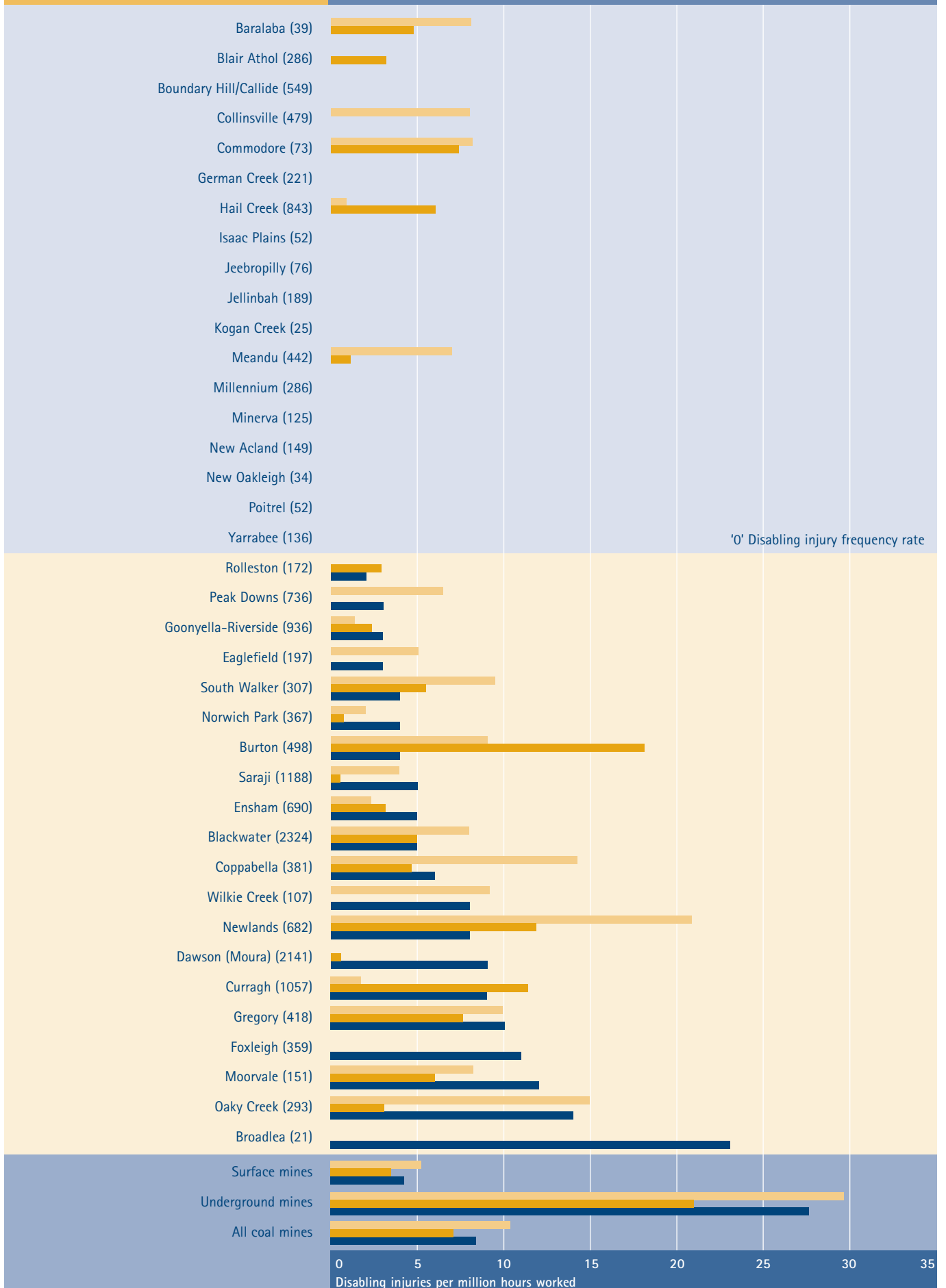


**FIGURE 19** Disabling injury frequency rate surface coal mines

In ascending order of 2005–06 statistics

2003–04 2004–05 2005–06

( ) = number of employees as at 30/06/06

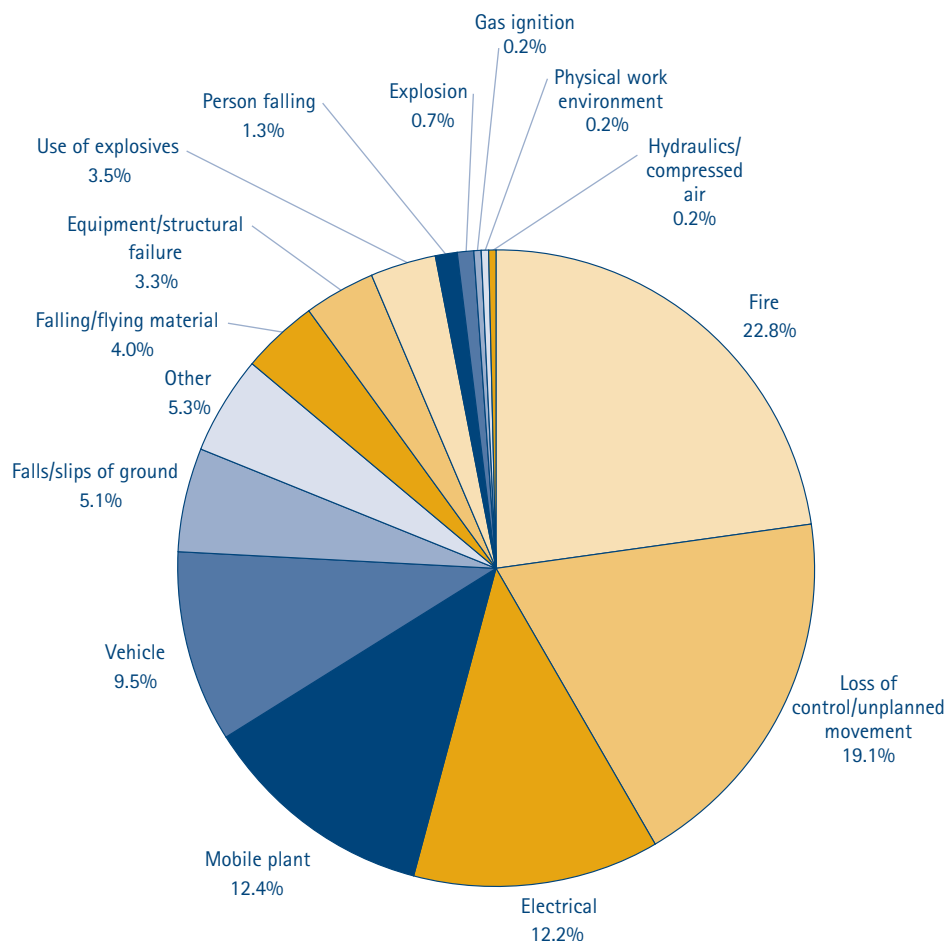


### High potential incidents

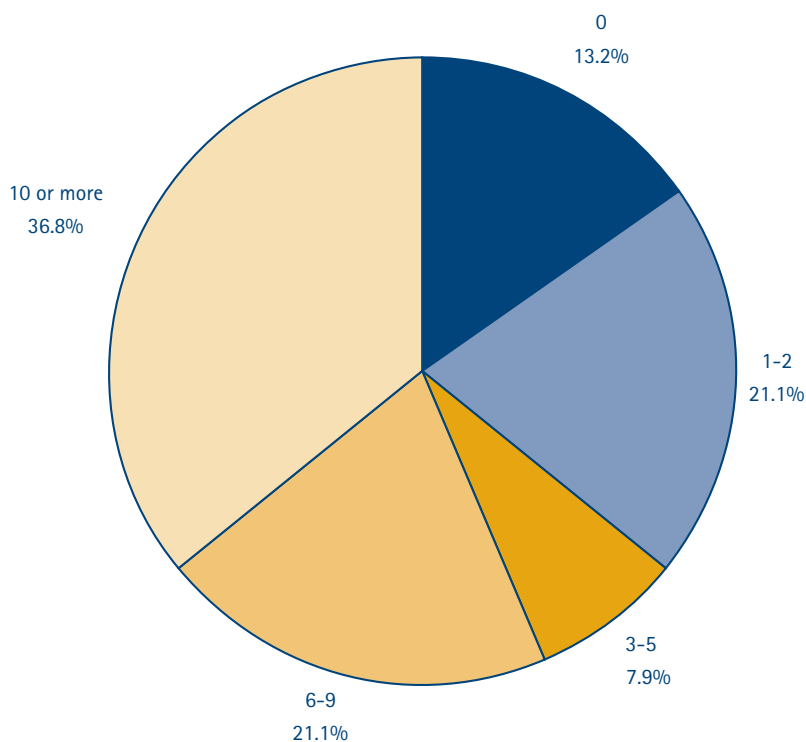
Fires were the most common high potential incident (HPI) on surface coal mines during 2005–06 (figure 20).

In 2005–06, 13.2 per cent of surface coal mines reported no HPIs (figure 21), compared with six per cent in 2004–05.

**FIGURE 20 Coal surface high potential incidents 2005–06**



**FIGURE 21 Coal surface—number of high potential incidents reported per mine 2005 –06**



## 3. Underground coal mines

The following section is an analysis of lost time injuries in underground coal mines, as shown in tables 1, 2 and 3.

Compared with the previous year:

- The number of lost time injuries increased 16 per cent, from 87 to 101.
- The number of days lost increased 104 per cent, from 1405 to 2863.
- The lost time injury frequency rate (LTIFR) increased two per cent, from 11.8 to 12.1.
- The severity rate increased 78 per cent, from 191 to 341.
- The duration rate increased from 16.1 days to 28.3 days.
- The number of disabling injuries increased from 154 to 236.
- The number of high potential incidents increased from 112 to 123.
- The number of medical treatments reported was 374.

During the 2005–06 reporting period:

- Approximately 4300 people were employed in underground coal mines (as at 30 June 2006).
- Sixteen underground coal mines were operating.
- Safety performance (as measured by LTIFR) improved at six mines.

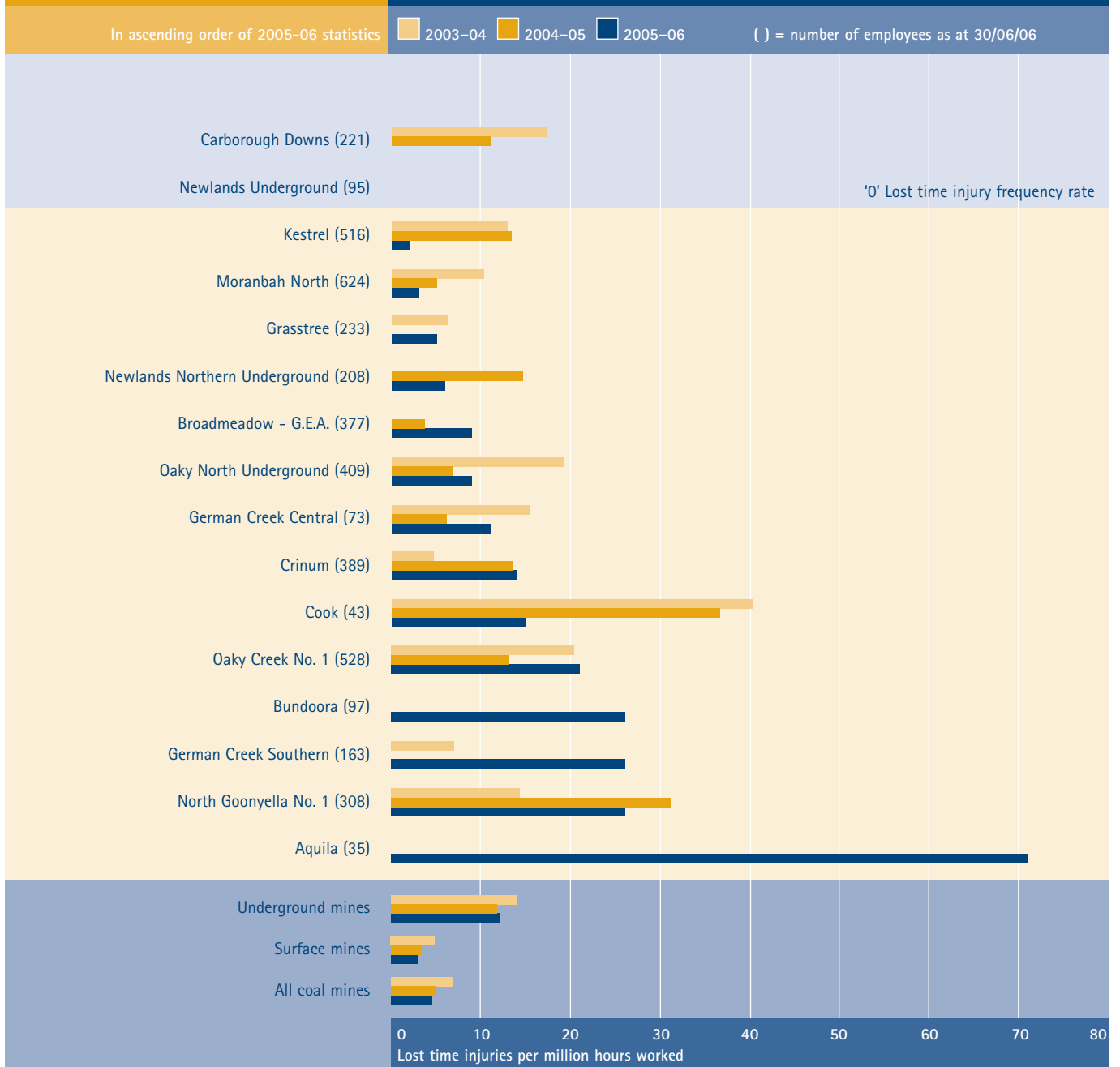
Table 12 and figures 22 to 24 show the performance of the various mines in the underground coal sector over the past three years.

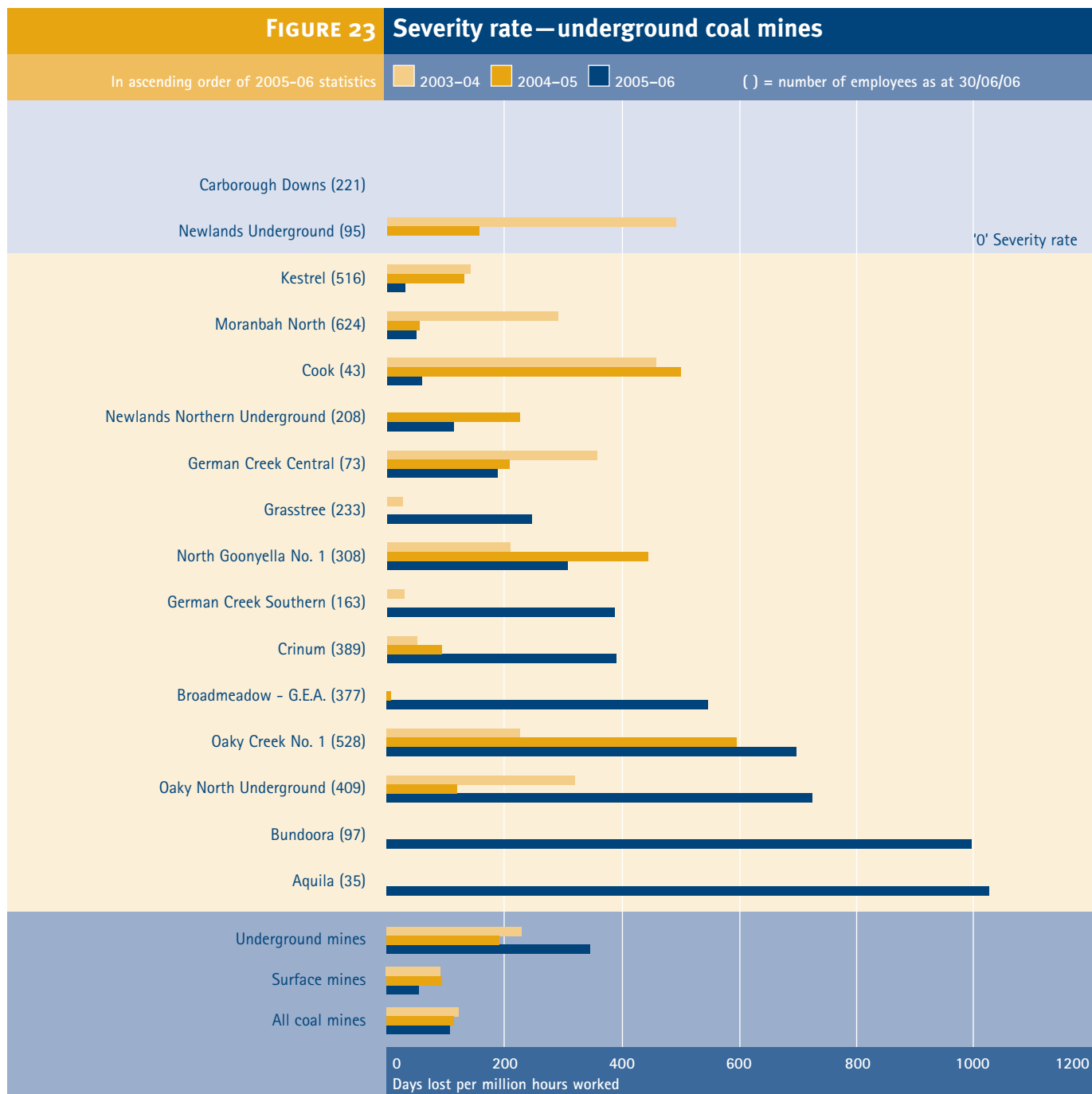
**TABLE 12 Underground coal mines injury statistics**

Mine	Number of injuries	Days lost	Million hours worked	Employees as at 30/06/06	Million tonnes produced	LTI frequency rate	Severity rate	Incidence rate	Duration rate	Injuries per million tonnes	Disabling injuries	High potential incidents	Medical treatments
Aquila	5	72	0.0702	35	*	71	1026	14	14	0	0	14	6
Broadmeadow – G.E.A.	5	318	0.5844	377	2.109	9	544	1	64	2	17	4	16
Bundoora	5	193	0.1939	97	*	26	995	5	39	0	0	6	8
Carborough Downs	0	0	0.3030	221	*	0	0	0	0	0	1	0	5
Cook	2	8	0.1357	43	0.114	15	59	5	4	18	3	3	0
Crinum	11	306	0.7838	389	4.129	14	390	3	28	3	20	18	72
German Creek Central	2	35	0.1873	73	1.284	11	187	3	18	2	0	0	13
German Creek Southern	8	117	0.3026	163	2.707	26	387	5	15	3	7	6	14
Grasstree	3	135	0.5509	233	0.491	5	245	1	45	6	0	12	15
Kestrel	2	24	0.8097	516	4.319	2	30	0	12	0	0	13	11
Moranbah North	3	54	1.0856	624	4.089	3	50	0	18	1	4	0	26
Newlands Northern Underground	3	56	0.5037	208	3.176	6	111	1	19	1	13	2	3
Newlands Underground	0	0	0.0978	95	1.513	0	0	0	0	0	0	0	1
North Goonyella No. 1	25	295	0.9642	308	0.820	26	306	8	12	30	90	21	7
Oaky Creek No. 1	19	627	0.9009	528	4.764	21	696	4	33	4	45	11	88
Oaky North Underground	8	623	0.8600	409	4.700	9	724	2	78	2	36	13	89
Total 2005–06	101	2 863	8.3337	4 319	34.215	12.1	344	2.3	28.3	2.9	236	123	374
Total 2004–05	87	1 405	7.3475	3 579	34.741	11.8	191	2.4	16.1	2.5	154	63	440

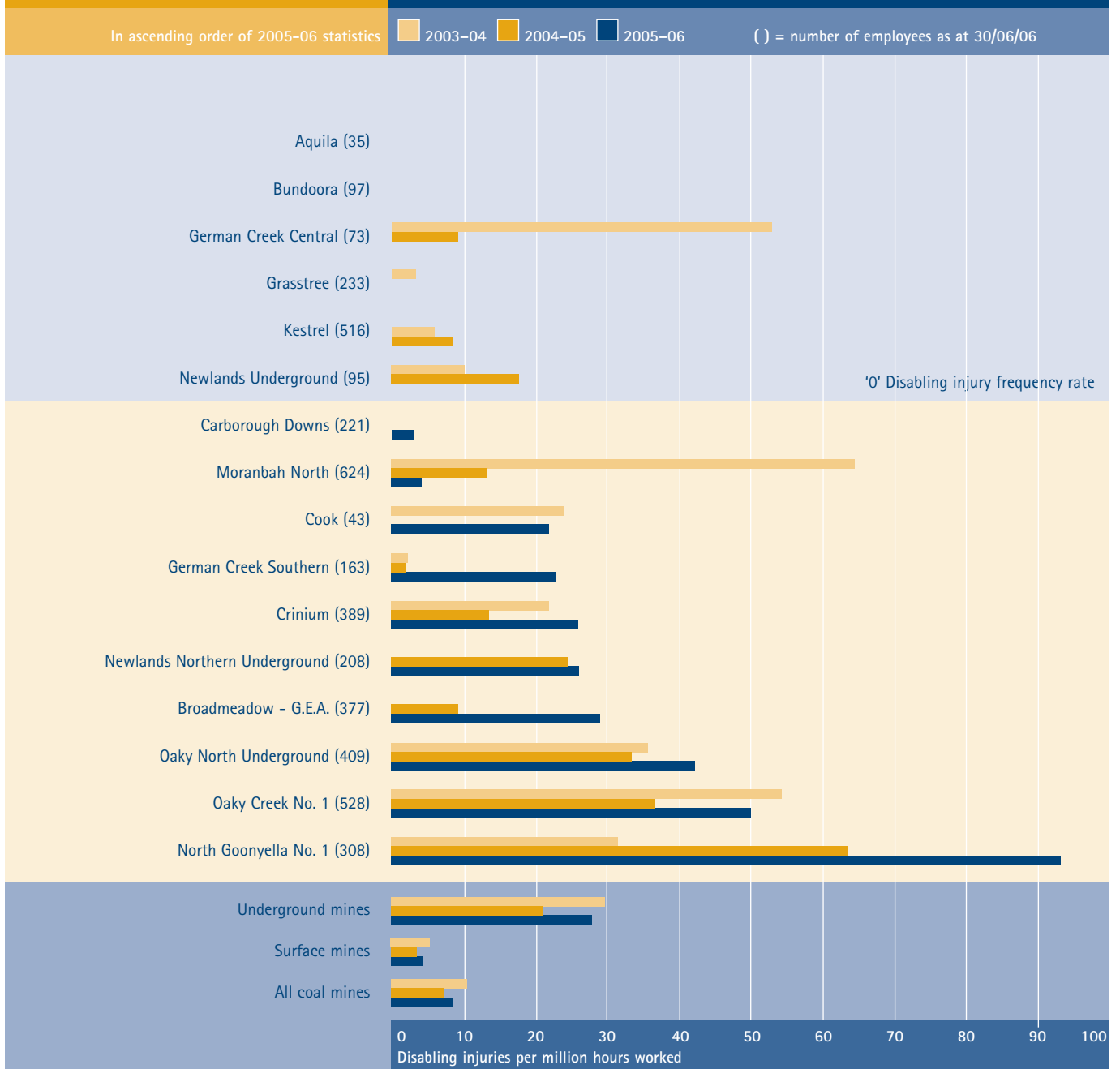
\* In development stage

**FIGURE 22** Lost time injury frequency rate – underground coal mines





**FIGURE 24** Disabling injury frequency rate—underground coal mines

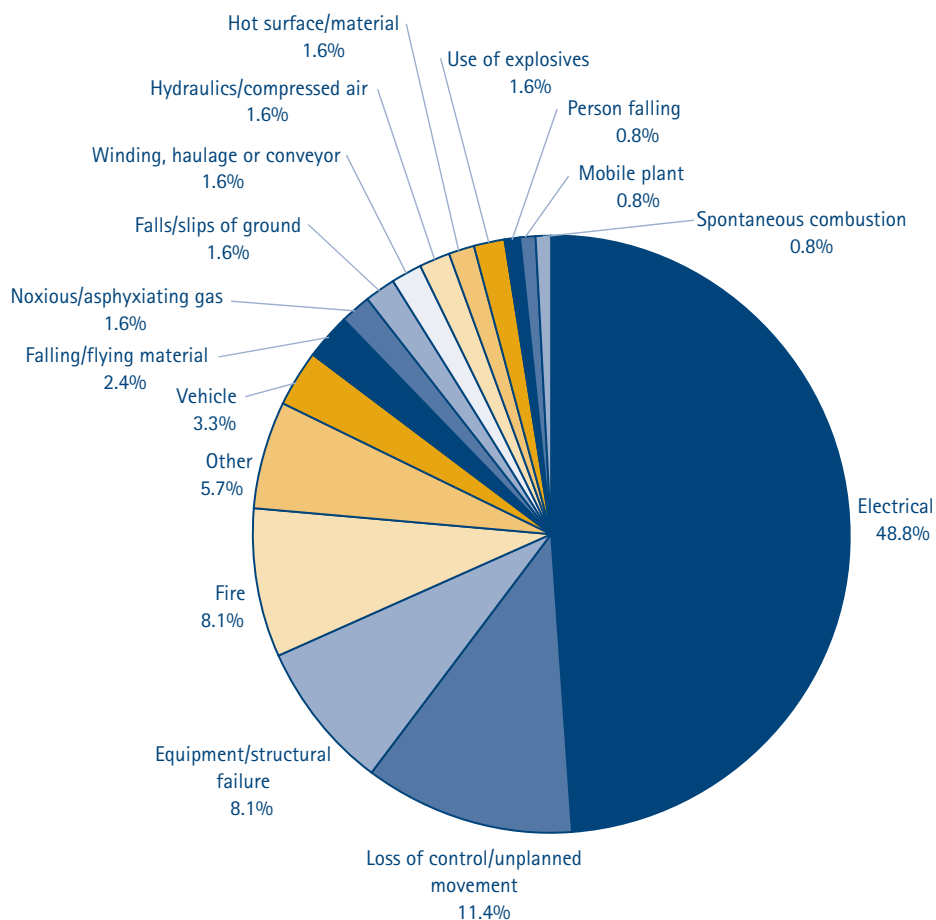


### High potential incidents

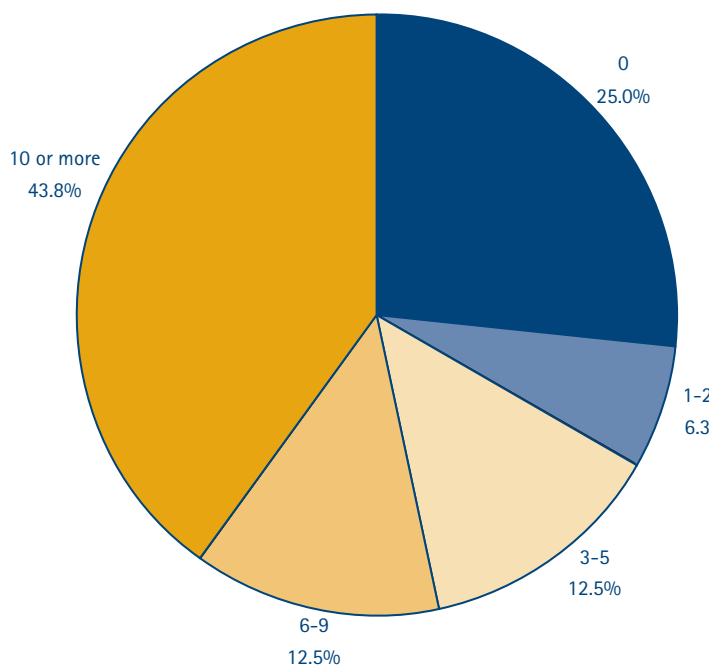
Electrical incidents were the most common high potential incident (HPI) in underground coal mines during 2005–06 (figure 25).

In 2005–06, 25 per cent of underground coal mines reported no HPIs (figure 26), compared with 23 per cent in 2004–05.

**FIGURE 25 Coal underground high potential incidents 2005–06**



**FIGURE 26 Coal underground—number of high potential incidents reported per mine 2005–06**



## 4. Surface metalliferous operations

The following section is an analysis of lost time injuries on surface metalliferous operations, as shown in tables 1, 2 and 3. (The tables and graphs show only metalliferous surface operations with 10 or more employees.)

Compared with the previous year:

- The number of lost time injuries decreased 17 per cent, from 53 to 44.
- The number of days lost decreased 33 per cent, from 981 to 657.
- The lost time injury frequency rate (LTIFR) decreased 22 per cent, from 3.7 to 2.9.
- The severity rate decreased 38 per cent, from 69 to 43.
- The duration rate decreased from 18.5 days to 14.9 days.
- The number of disabling injuries increased from 36 to 40.
- The number of high potential incidents decreased from 123 to 89.

During the 2005–06 reporting period:

- Approximately 6200 people were employed on surface metalliferous operations (as at 30 June 2006).
- Twenty-nine large and medium metalliferous surface mines were operating (excluding the four plant and service units at Xstrata's Mount Isa mines).
- Safety performance (as measured by LTIFR) improved at eight operations.

Table 13 and figures 27 to 29 show the performance of the various operations in the surface metalliferous sector over the past three years.

**TABLE 13 Surface metalliferous operations injury statistics  
(10 or more employees)**

Mine	Number of injuries	Days lost	Million hours worked	Employees as at 30/06/06	LTI frequency rate	Severity rate	Incidence rate	Duration rate	Disabling injuries	High potential incidents
ACI Sand (Unimin)	0	0	0.0187	17	0	0	0	0	0	0
Bajool Salt Cheetham	1	59	0.0808	39	12	730	3	59	0	3
Cape Flattery	0	0	0.1210	75	0	0	0	0	0	0
Carpentaria Gold (Sarsfield)	4	47	0.7754	267	5	61	1	12	0	4
Century Mine	5	52	2.6510	906	2	20	1	10	1	8
Chillagoe Perlite	0	0	0.0231	12	0	0	0	0	0	0
Comerford Sandstone	1	30	0.0146	13	68	2053	8	30	1	0
CRL (NSI)	3	11	0.6870	291	4	16	1	4	0	0
East End	0	0	0.1102	40	0	0	0	0	0	0
Elbow Valley (Unimin)	0	0	0.0412	21	0	0	0	0	0	0
Ernest Henry	2	3	1.6001	570	1	2	0	2	3	14
Gurulmundi (Unimin)	0	0	0.0402	26	0	0	0	0	0	3
Kagara – Mt Garnet	1	0	0.1798	59	6	0	2	0	0	1
Kagara – Balcooma Dry River South	0	0	0.2710	170	0	0	0	0	0	0
Kunwarara	4	60	0.2530	82	16	237	5	15	5	8
Marmor	0	0	0.0243	12	0	0	0	0	0	0
Mountainside	1	2	0.0270	16	37	74	6	2	0	0
Mt Rawdon	0	0	0.2951	108	0	0	0	0	0	3
Ningi Silica Sand Mine	0	0	0.0729	38	0	0	0	0	0	0
Phosphate Hill (WMC)	2	6	1.1602	344	2	5	1	3	0	0
Mount Isa acid plant (WMC)	0	0	0.1996	61	0	0	0	0	0	0
Riverton (Unimin)	0	0	0.0471	18	0	0	0	0	0	0
Small mines O/C Brisbane	7	66	0.3000	150	23	220	5	9	0	7
Small mines O/C Cairns	0	0	0.0400	20	0	0	0	0	0	0
Small mines O/C Mareeba	0	0	0.1800	90	0	0	0	0	0	0
Small mines O/C Mount Isa	0	0	0.1813	66	0	0	0	0	0	0
Small mines O/C Rockhampton	3	276	0.0880	44	34	3136	7	92	0	0
Skardon River	1	8	0.0617	22	16	130	5	8	0	0
Stuart Oil Shale	0	0	0.0884	47	0	0	0	0	0	0
Taragoola	0	0	0.0523	28	0	0	0	0	0	0
Thalanga	0	0	0.0328	36	0	0	0	0	0	0
Twin Hill Mine	1	5	0.0018	23	553	2764	4	5	0	0
Weipa – bauxite	1	3	1.7030	965	1	2	0	3	0	1
Yuleba	0	0	0.0175	13	0	0	0	0	0	0
<b>All mines excluding Mount Isa Mines</b>	<b>37</b>	<b>628</b>	<b>11.4401</b>	<b>4 689</b>	<b>3.2</b>	<b>55</b>	<b>0.8</b>	<b>17.0</b>	<b>10</b>	<b>52</b>
<b>Mount Isa Mines operations</b>										
Copper surface operations	3	13	0.2872	113	10	45	3	4	1	16
Lead/Zinc surface operations	3	12	1.3044	545	2	9	1	4	6	18
Surface support operations	1	4	1.1189	515	1	4	0	4	3	2
Metallurgical plant operations	0	0	1.1333	399	0	0	0	0	20	1
<b>Mount Isa Mines total</b>	<b>7</b>	<b>29</b>	<b>3.8436</b>	<b>1572</b>	<b>1.8</b>	<b>8</b>	<b>0</b>	<b>4.1</b>	<b>30</b>	<b>37</b>
<b>Total 2005–06</b>	<b>44</b>	<b>657</b>	<b>15.2839</b>	<b>6 261</b>	<b>2.9</b>	<b>43</b>	<b>0.7</b>	<b>14.9</b>	<b>40</b>	<b>89</b>
<b>Total 2004–05</b>	<b>53</b>	<b>981</b>	<b>14.1987</b>	<b>5 585</b>	<b>3.7</b>	<b>69</b>	<b>0.9</b>	<b>18.5</b>	<b>36</b>	<b>123</b>

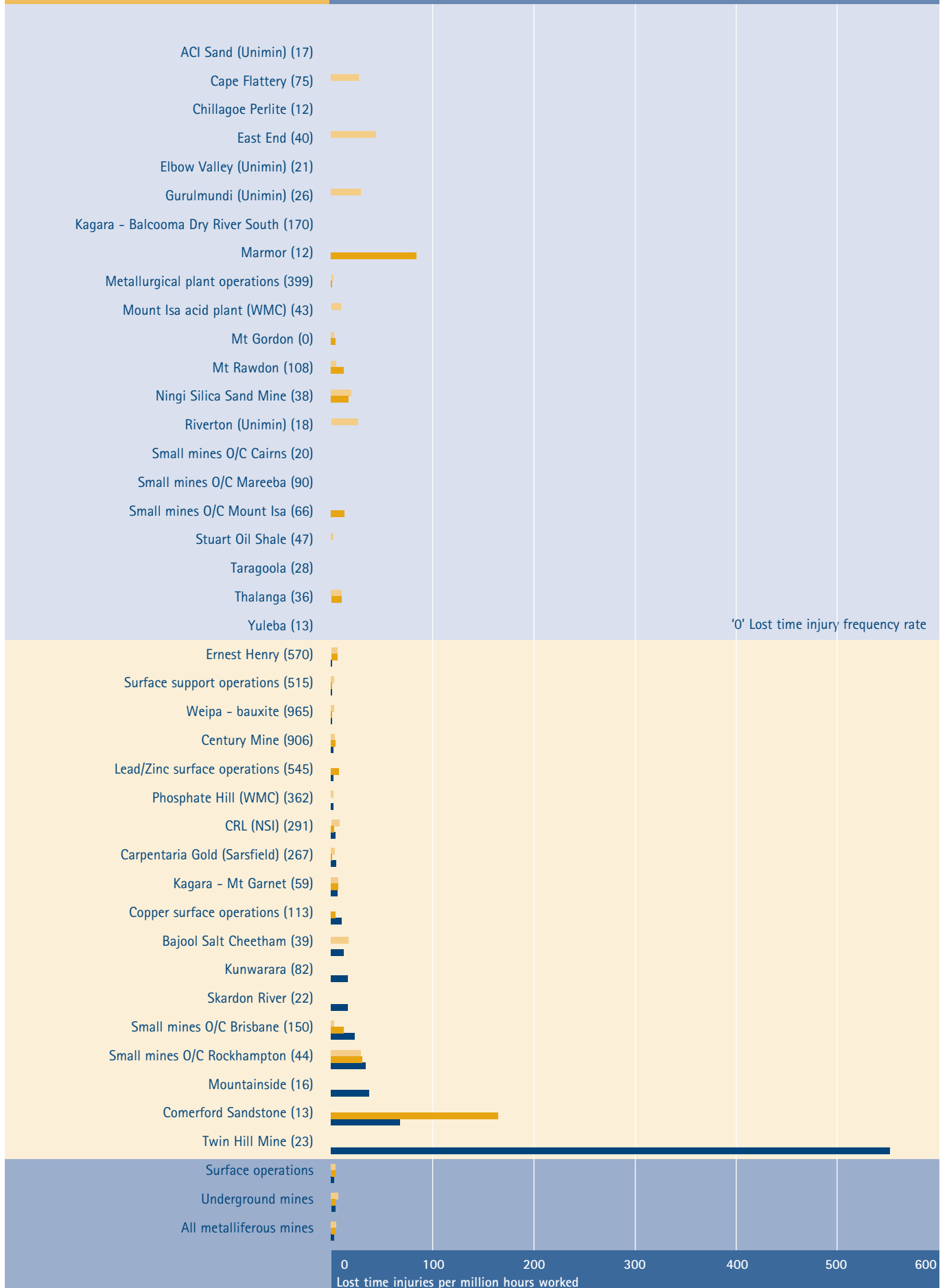
O/C = open-cut

**FIGURE 27** Lost time injury frequency rate— surface metalliferous operations

In ascending order of 2005–06 statistics

2003–04 2004–05 2005–06

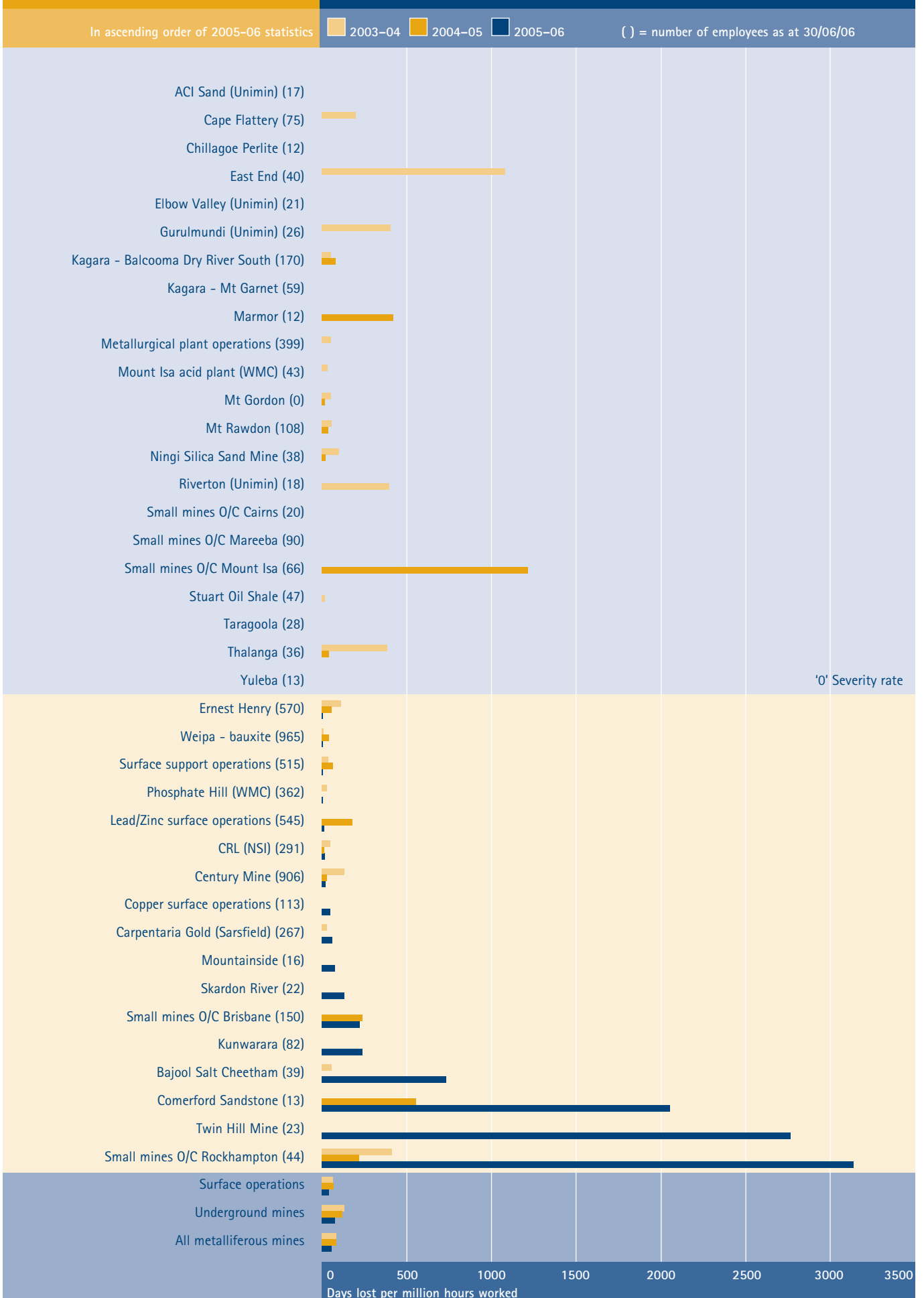
( ) = number of employees as at 30/06/06



'0' Lost time injury frequency rate

0 100 200 300 400 500 600  
Lost time injuries per million hours worked

**FIGURE 28** Severity rate—surface metalliferous operations



O/C = open-cut

**FIGURE 29** Disabling injury frequency rate—surface metalliferous operations

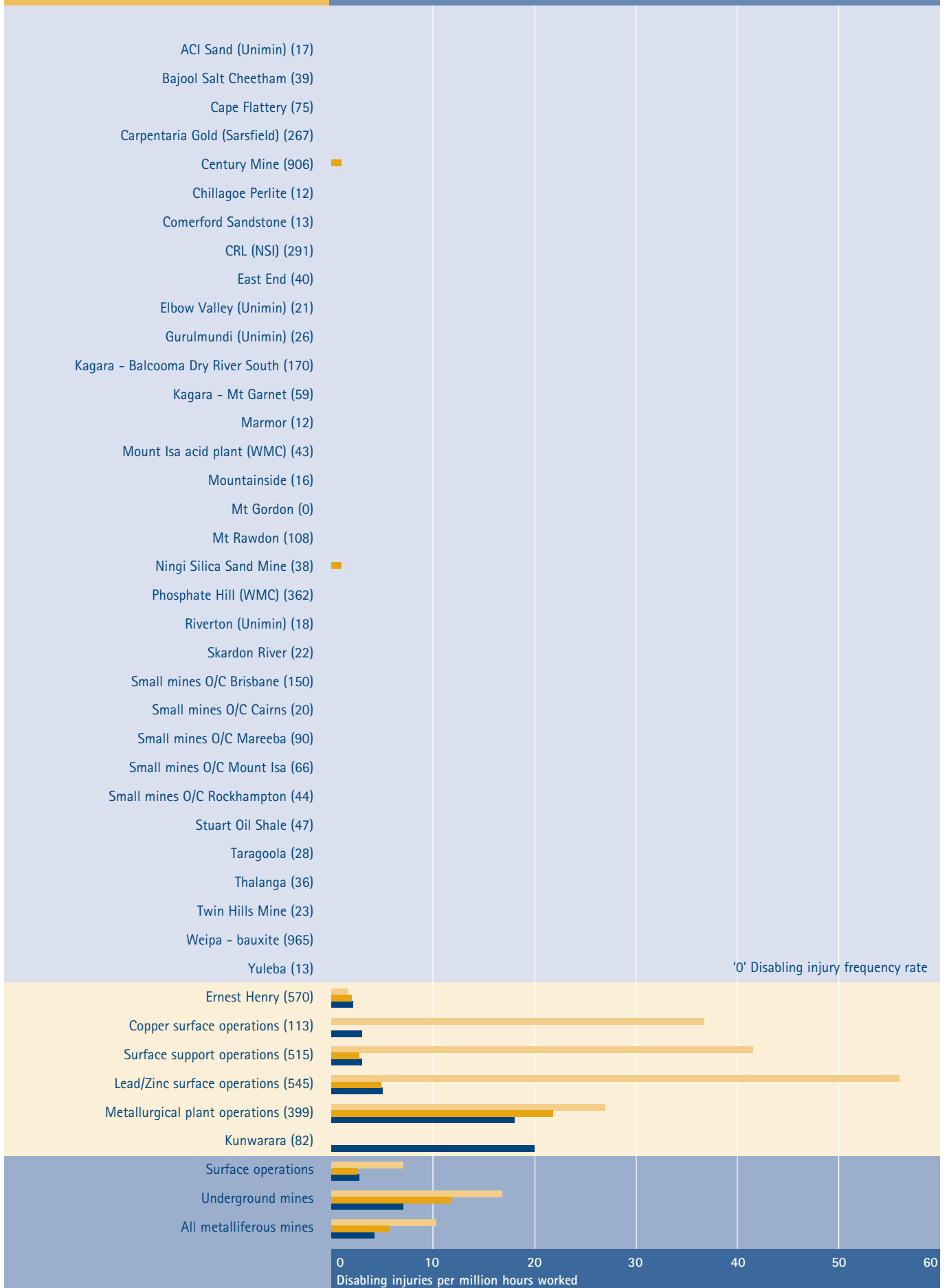
In ascending order of 2005–06 statistics

2003–04

2004–05

2005–06

( ) = number of employees as at 30/06/06



'05 Disabling injury frequency rate

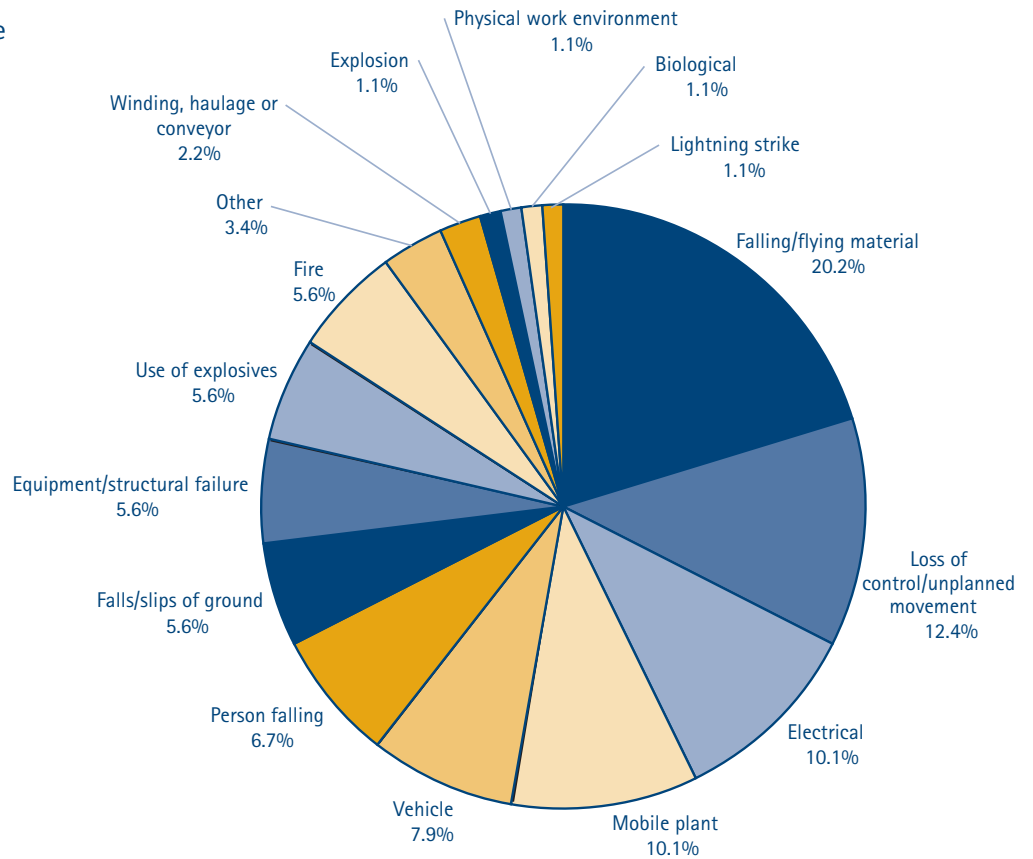
Disabling injuries per million hours worked

### High potential incidents

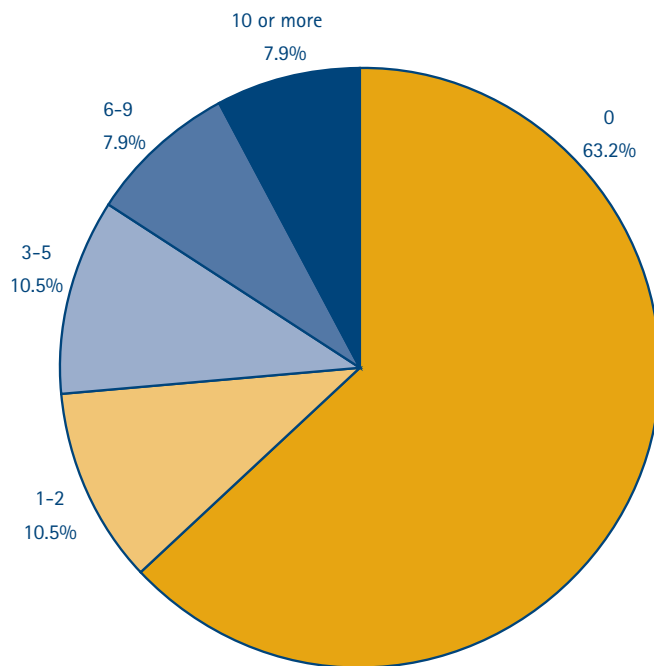
Falling/flying material incidents were the most common high potential incident (HPI) on surface metalliferous operations during 2005–06 (figure 30).

In 2005–06, 63.2 per cent of all surface metalliferous operations reported no HPIs (figure 31), compared with 40 per cent in 2004–05.

**FIGURE 30 Metalliferous surface high potential incidents 2005–06**



**FIGURE 31 Metalliferous surface—number of high potential incidents reported per operation 2005–06**



## 5. Underground metalliferous mines

The following section is an analysis of lost time injuries in underground metalliferous mines, as shown in tables 1, 2 and 3.

Compared with the previous year:

- The number of lost time injuries increased 16 per cent, from 31 to 36.
- The number of days lost decreased 27 per cent, from 930 to 679.
- The lost time injury frequency rate (LTIFR) remained constant at 3.9.
- The severity rate decreased 38 per cent, from 117 to 73.
- The duration rate decreased from 30 days to 18.9 days.
- The number of disabling injuries decreased from 91 to 65.
- The number of high potential incidents decreased from 151 to 144.

During the 2005–06 reporting period:

- Approximately 4200 people were employed in underground metalliferous mines (as at 30 June 2006).
- Fourteen major underground metalliferous mines were operating.
- Safety performance (as measured by LTIFR) improved at three mines.

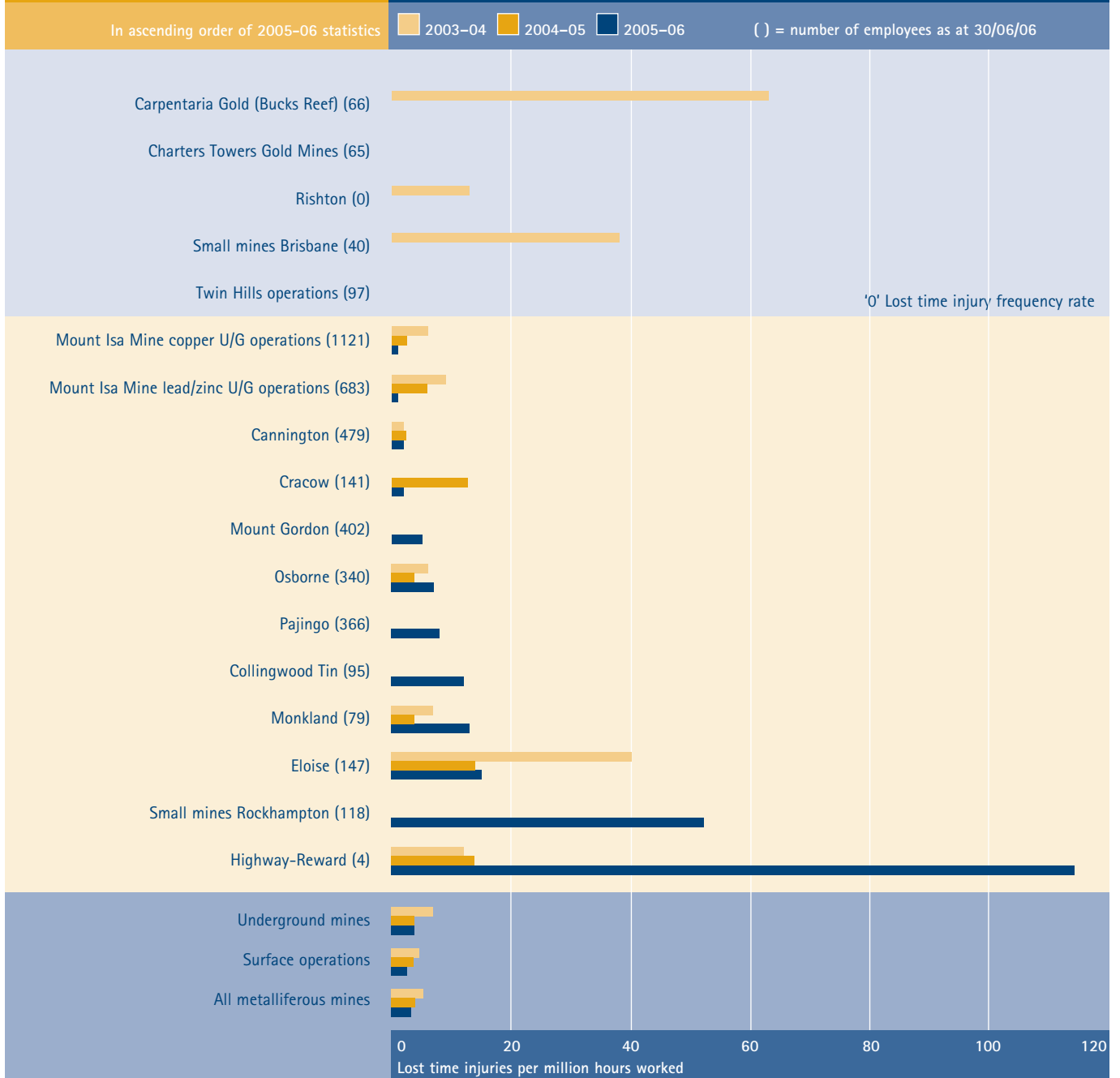
Table 14 and figures 32 to 34 show the performance of the various mines in the underground metalliferous sector over the past three years.

**TABLE 14 Underground metalliferous mines injury statistics**

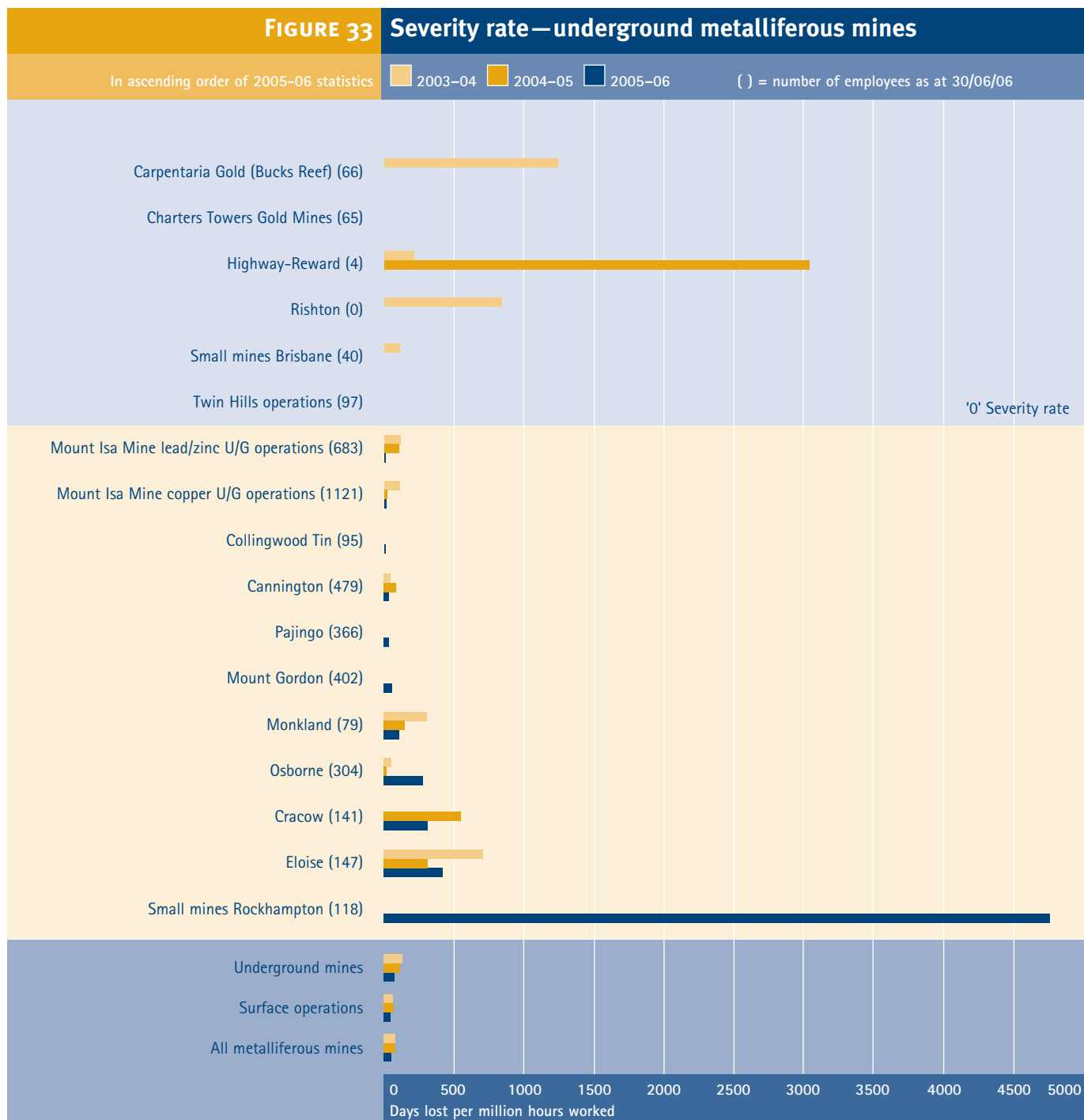
Mine	Number of injuries	Days lost	Million hours worked	Employees as at 30/6/06	LTI frequency rate	Severity rate	Incidence rate	Duration rate	Disabling injuries	High potential incidents
Cannington	4	56	1.7148	479	2	33	1	14	8	35
Carpentaria Gold (Bucks Reef)	0	0	0.1327	66	0	0	0	0	0	0
Collingwood Tin	2	2	0.1655	95	12	12	2	1	0	0
Charters Towers Gold Mines	0	0	0.0596	65	0	0	0	0	0	0
Cracow	1	142	0.4508	141	2	315	1	142	0	3
Eloise	6	164	0.3978	147	15	412	4	27	9	3
Highway-Reward	1	0	0.0088	4	114	0	25	0	0	0
Monkland	2	18	0.1586	79	13	113	3	9	0	3
Mount Gordon	4	48	0.8035	402	5	60	1	12	0	15
Osborne	5	190	0.6800	340	7	279	1	38	0	12
Pajingo	6	31	0.7565	366	8	41	2	5	0	10
Small mines Brisbane	0	0	0.0800	40	0	0	0	0	0	0
Small mines Rockhampton	0	0	0.2360	118	0	0	0	0	0	0
Twin Hills operations	0	0	0.1685	97	0	0	0	0	0	0
<b>All mines excluding Mount Isa Mines</b>	<b>31</b>	<b>651</b>	<b>5.813103</b>	<b>2439</b>	<b>5.3</b>	<b>112</b>	<b>1.3</b>	<b>21.0</b>	<b>17</b>	<b>81</b>
<b>Mount Isa Mines operations</b>										
Mount Isa Mine copper U/G operations	3	26	2.1767	1121	1	12	0	9	30	40
Mount Isa Mine lead/zinc U/G operations	2	2	1.3537	683	1	1	0	1	18	23
<b>Mount Isa Mines total</b>	<b>5</b>	<b>28</b>	<b>3.5304</b>	<b>1804</b>	<b>1.4</b>	<b>8</b>	<b>0.3</b>	<b>5.6</b>	<b>48</b>	<b>63</b>
<b>Total 2005-06</b>	<b>36</b>	<b>679</b>	<b>9.3435</b>	<b>4 243</b>	<b>3.9</b>	<b>73</b>	<b>0.8</b>	<b>18.9</b>	<b>65</b>	<b>144</b>
<b>Total 2004-05</b>	<b>31</b>	<b>930</b>	<b>7.9778</b>	<b>3 775</b>	<b>3.9</b>	<b>117</b>	<b>0.8</b>	<b>30.0</b>	<b>91</b>	<b>151</b>

U/G = underground

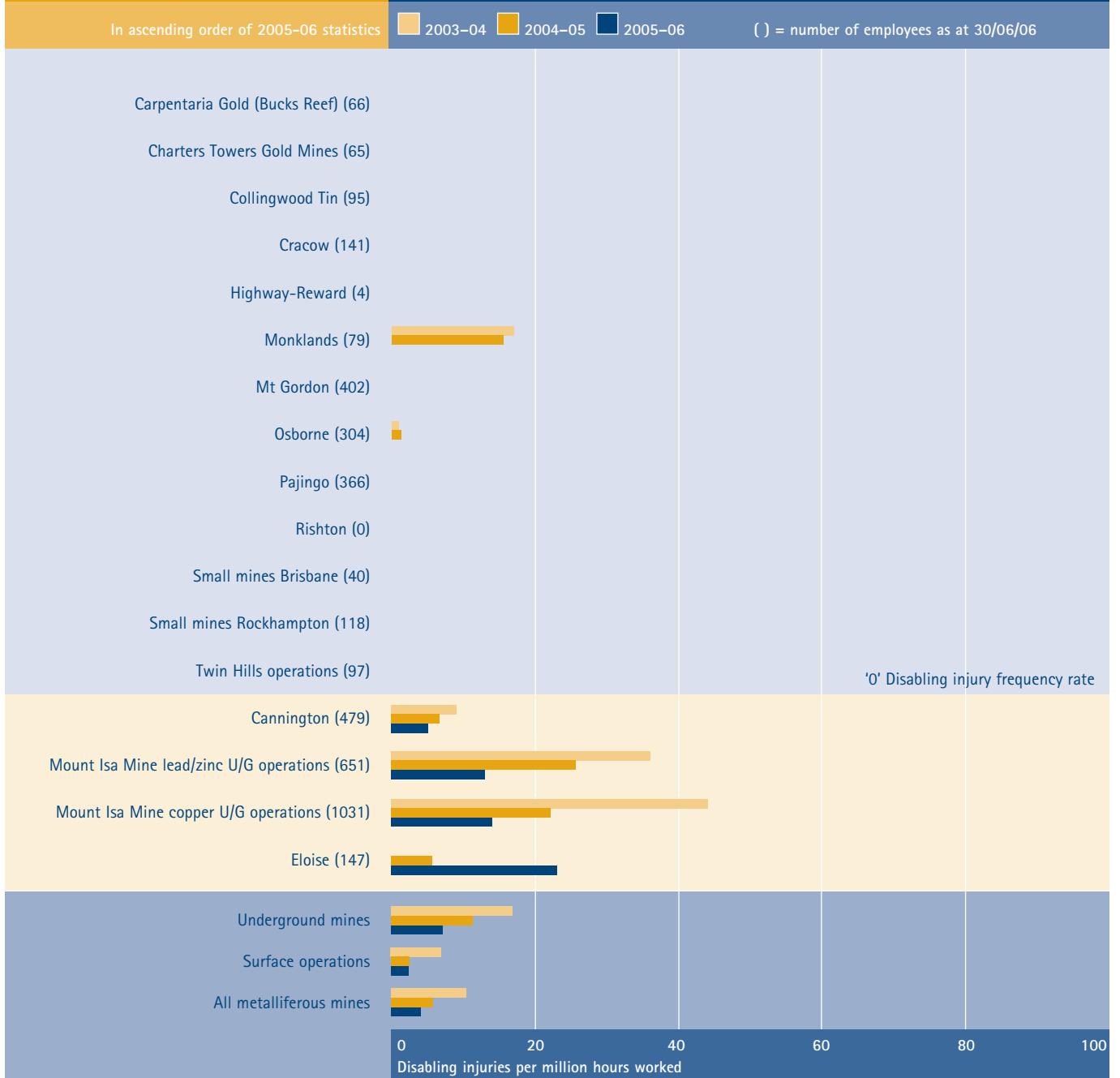
**FIGURE 32** Lost time injury frequency rate—underground metalliferous mines



U/G = underground



**FIGURE 34** Disabling injury frequency rate—underground metalliferous mines



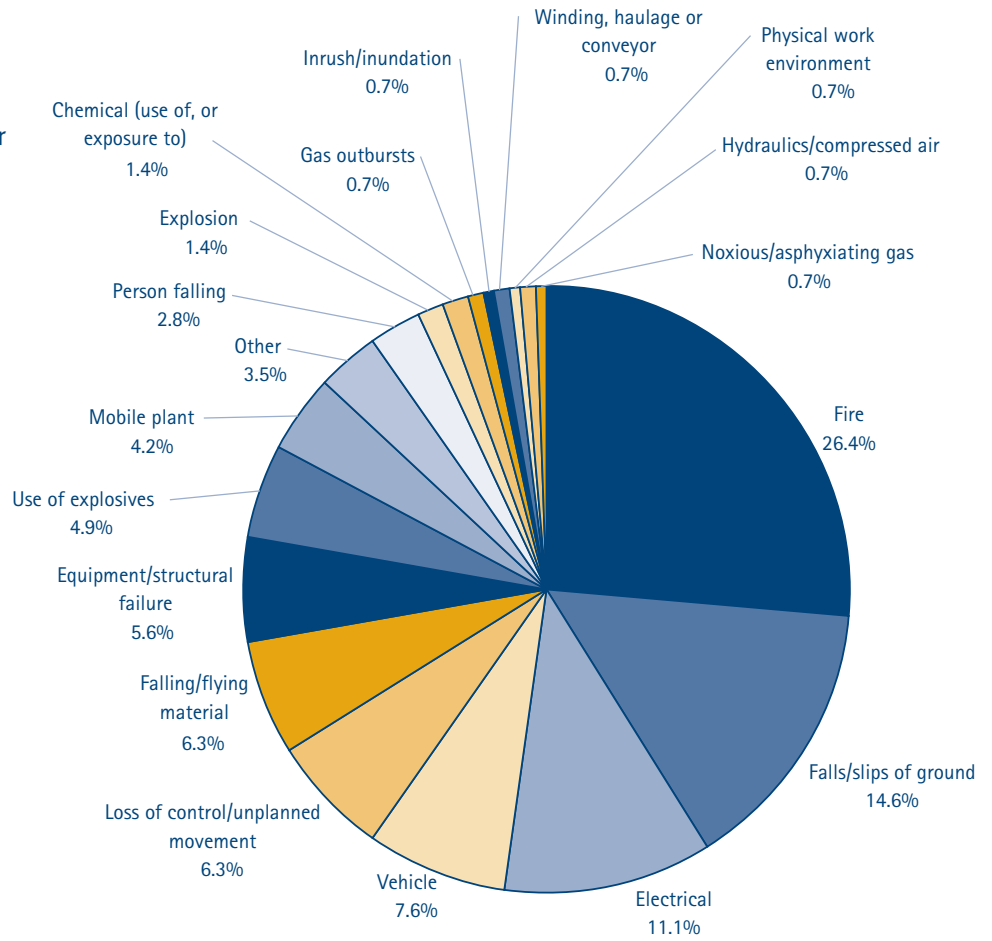
U/G = underground

### High potential incidents

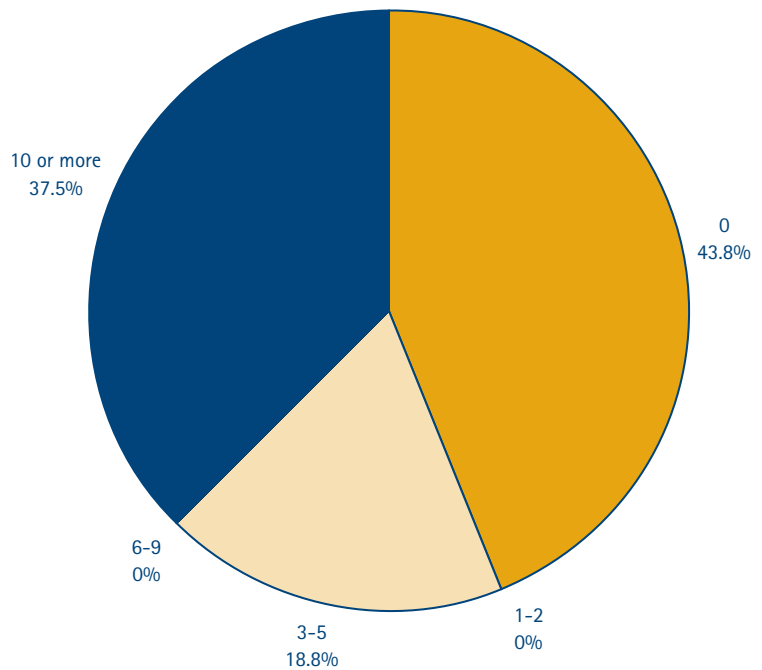
Fires were the most common high potential incident (HPI) in underground metalliferous mines during 2005–06 (figure 35).

In 2005–06, 43.8 per cent of major underground metalliferous mines reported no HPis (figure 36), compared with 34 per cent in 2004–05.

**FIGURE 35 Metalliferous underground high potential incidents 2005–06**



**FIGURE 36 Metalliferous underground—number of high potential incidents reported per mine 2005–06**



## 6. Quarries

The following section is an analysis of lost time injuries in quarries, as shown in tables 1, 2 and 3. (The tables and graphs show only quarries with 10 or more employees.)

Compared with the previous year:

- The number of lost time injuries increased 24 per cent, from 17 to 21.
- The number of days lost decreased 59 per cent, from 348 to 144.
- The lost time injury frequency rate (LTIFR) increased 24 per cent, from 6.3 to 7.8.
- The severity rate decreased 59 per cent, from 129 to 53.
- The duration rate decreased from 20.5 days to 6.9 days.
- The number of disabling injuries increased from 2 to 5.
- The number of high potential incidents decreased from 39 to 32.

During the 2005–06 reporting period:

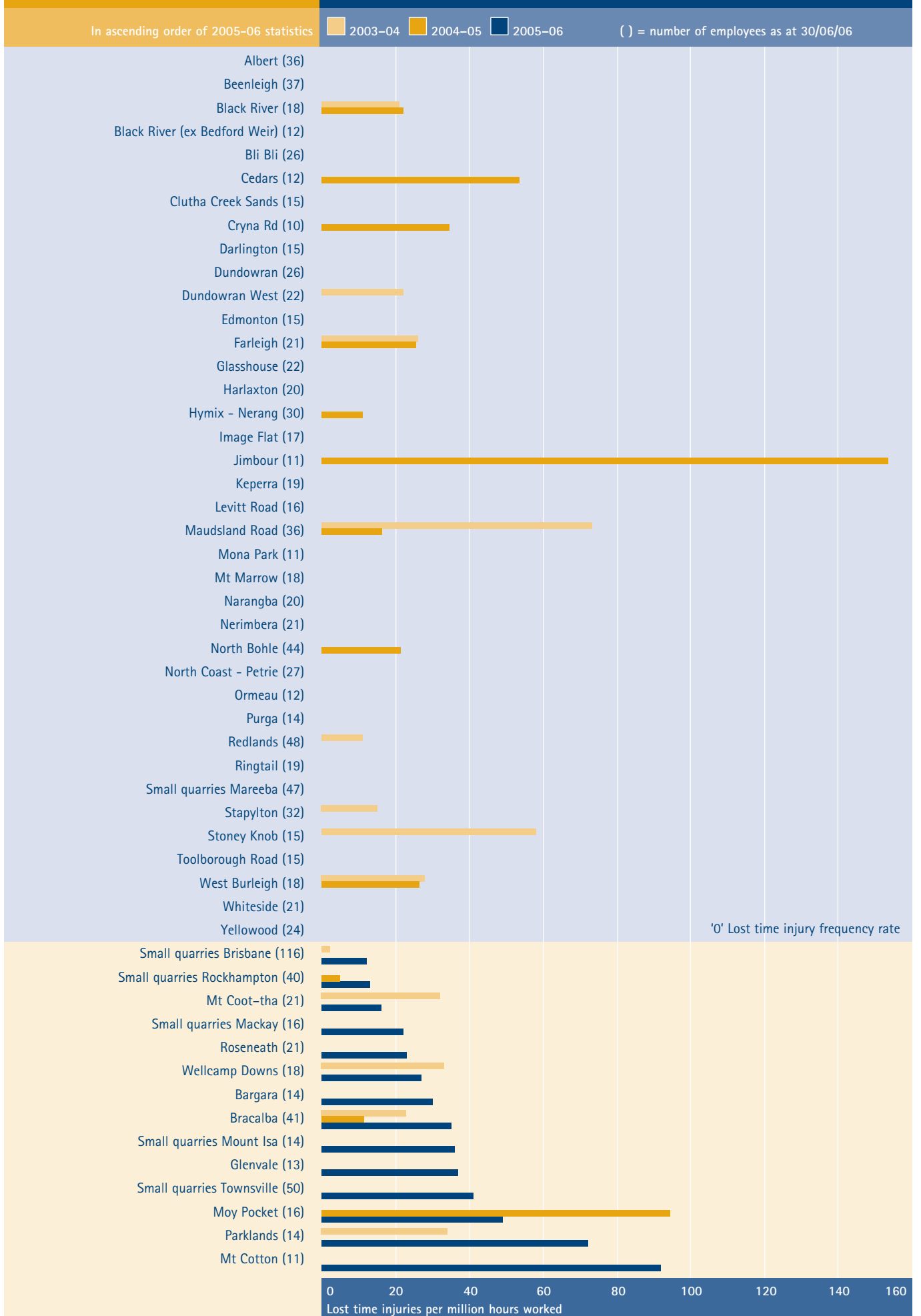
- Approximately 1200 people were employed on quarries (as at 30 June 2006).
- Forty-six major quarries were operating.
- Safety performance (as measured by LTIFR) improved at nine quarries.

Table 15 and figures 37 to 38 show the performance of the various quarries. Because only five disabling injuries were reported in 2005–06, no disabling injury frequency rate chart is shown.

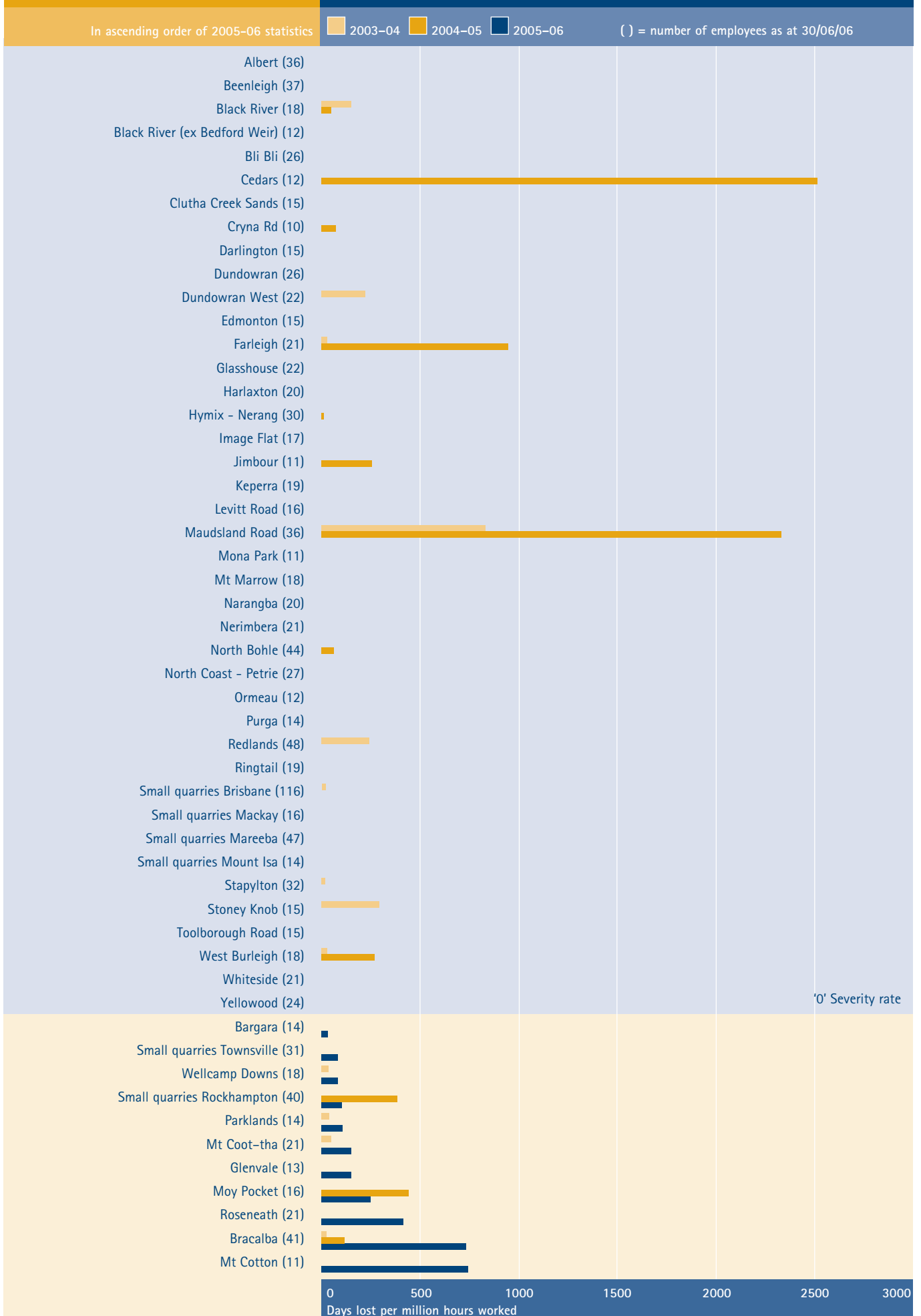
**TABLE 15 Quarries injury statistics (10 or more employees)**

Mine	Number of injuries	Days lost	Million hours worked	Employees as at 30/06/06	LTI frequency rate	Severity rate	Incidence rate	Duration rate	Disabling injuries	High potential incidents
Albert	0	0	0.0664	36	0	0	0	0	0	0
Beenleigh	0	0	0.0893	37	0	0	0	0	0	6
Black River	0	0	0.0354	18	0	0	0	0	0	0
Black River (ex Bedford Weir)	0	0	0.0647	12	0	0	0	0	0	0
Bli Bli	0	0	0.0374	26	0	0	0	0	0	0
Bargara	1	1	0.0338	14	30	30	7	0	0	0
Bracalba	3	63	0.0864	41	35	730	7	21	0	6
Cedars	0	0	0.0211	12	0	0	0	0	1	0
Clutha Creek Sands	0	0	0.0121	15	0	0	0	0	0	0
Cryna Rd	0	0	0.0325	10	0	0	0	0	0	0
Darlington	0	0	0.0300	15	0	0	0	0	0	1
Dundowran	0	0	0.0178	26	0	0	0	0	1	0
Dundowran West	0	0	0.0431	22	0	0	0	0	0	2
Edmonton	0	0	0.0304	15	0	0	0	0	0	0
Farleigh	0	0	0.0419	21	0	0	0	0	0	0
Glasshouse	0	0	0.0563	22	0	0	0	0	0	0
Glenvale	1	4	0.0270	13	37	148	8	0	0	0
Harlaxton	0	0	0.0338	20	0	0	0	0	0	1
Hymix – Nerang	0	0	0.0768	30	0	0	0	0	3	0
Image Flat	0	0	0.0251	17	0	0	0	0	0	1
Jimbour	0	0	0.0223	11	0	0	0	0	0	3
Keperra	0	0	0.0386	19	0	0	0	0	0	0
Levitt Road	0	0	0.0417	16	0	0	0	0	0	1
Maudsland Road	0	0	0.0711	36	0	0	0	0	0	0
Mona Park	0	0	0.0214	11	0	0	0	0	0	0
Moy Pocket	2	10	0.0404	16	49	247	13	5	0	1
Mt Coot–tha	1	9	0.0613	21	16	147	5	0	0	0
Mt Cotton	2	16	0.0217	11	92	738	18	0	0	0
Mt Marrow	0	0	0.0325	18	0	0	0	0	0	1
Narangba	0	0	0.0392	20	0	0	0	0	0	0
Nerimbera	0	0	0.0318	21	0	0	0	0	0	0
North Bohle	0	0	0.0346	44	0	0	0	0	0	0
North Coast – Petrie	0	0	0.0571	27	0	0	0	0	0	3
Ormeau	0	0	0.0273	12	0	0	0	0	0	0
Parklands	2	3	0.0279	14	72	107	14	0	0	1
Purga	0	0	0.0379	14	0	0	0	0	0	0
Redlands	0	0	0.1119	48	0	0	0	0	0	0
Ringtail	0	0	0.0045	19	0	0	0	0	0	0
Roseneath	1	18	0.0432	21	23	416	5	0	0	0
Small quarries Brisbane	2	5	0.2320	116	9	22	2	3	0	4
Small quarries Townsville	2	4	0.0494	31	41	81	6	0	0	0
Small quarries Mackay	1	0	0.0456	16	22	0	6	0	0	1
Small quarries Mareeba	0	0	0.3650	47	0	0	0	0	0	0
Small quarries Mount Isa	1	0	0.0280	14	36	0	7	0	0	0
Small quarries Rockhampton	1	8	0.0800	40	13	100	3	8	0	0
Stapylton	0	0	0.0643	32	0	0	0	0	0	0
Stoney Knob	0	0	0.0303	15	0	0	0	0	0	0
Toolborough Road	0	0	0.0392	15	0	0	0	0	0	0
Wellcamp Downs	1	3	0.0366	18	27	82	6	0	0	0
West Burleigh	0	0	0.0361	18	0	0	0	0	0	0
Whiteside	0	0	0.0582	21	0	0	0	0	0	0
Yellowood	0	0	0.0319	24	0	0	0	0	0	0
<b>Total 2005–06</b>	<b>21</b>	<b>144</b>	<b>2.7241</b>	<b>1228</b>	<b>7.7</b>	<b>53</b>	<b>1.7</b>	<b>6.9</b>	<b>5</b>	<b>32</b>
<b>Total 2004–05</b>	<b>17</b>	<b>348</b>	<b>2.6894</b>	<b>1234</b>	<b>6.3</b>	<b>129</b>	<b>1.4</b>	<b>20.5</b>	<b>2</b>	<b>39</b>

**FIGURE 37** Lost time injury frequency rate—quarries



**FIGURE 38** Severity rate—quarries

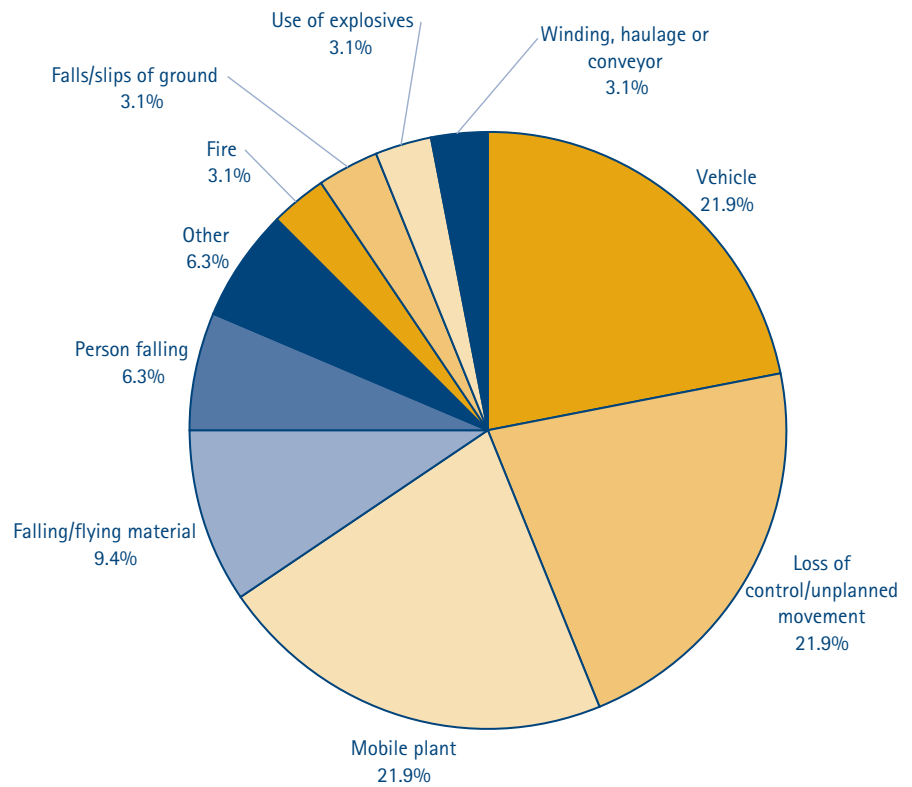


### High potential incidents

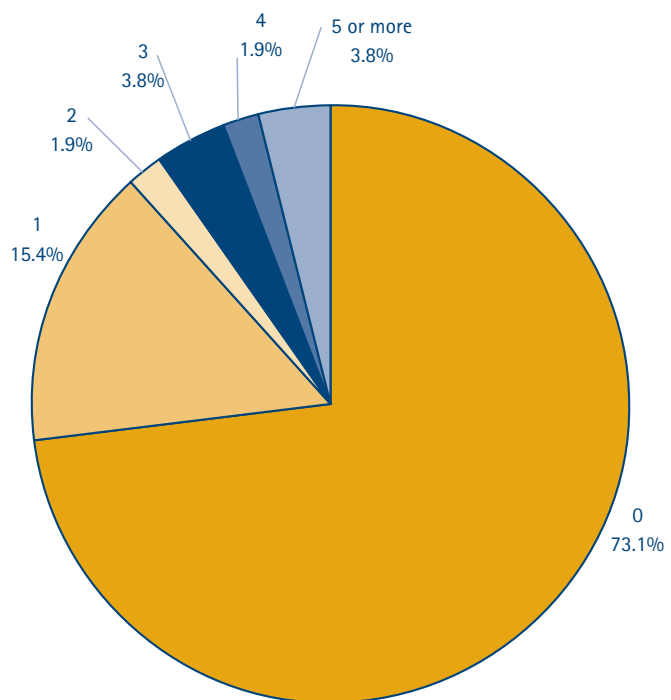
Vehicle incidents were the most common high potential incident (HPI) on quarries during 2005–06 (figure 39).

In 2005–06, 73.1 per cent of quarries reported no HPis (figure 40), compared with 53 per cent in 2004–05.

**FIGURE 39 Quarries high potential incidents 2005–06**



**FIGURE 40 Quarries—number of high potential incidents reported per quarry 2005–06**



## 7. Collection of information

Whenever a lost time injury (LTI) or high potential incident occurs, the mine or quarry operator submits a Queensland Mining Incident Report Form to the local inspector of mines.

Large mines and quarries (with 10 or more employees) also provide a monthly summary listing new and carryover LTIs and disabling injuries, re-opened claims, days lost and/or on alternative duties, and hours worked during the period.

Fourteen consecutive years of injury/disease data for coal and metalliferous mines are now available for analysis.

Most of the data in this report can be easily extracted using custom-built software within the department's Lost Time Accident Database.

Copies of the report are available on the Department of Mines and Energy web site at [www.dme.qld.gov.au](http://www.dme.qld.gov.au)

More detailed analyses of injuries in the mining and quarrying industry are available from:

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Department of Mines and Energy  
PO Box 15216  
City East Qld 4002  
Ph: (07) 3404 3143  
Email: [estelle.abbott@dme.qld.gov.au](mailto:estelle.abbott@dme.qld.gov.au)