

Safety & Health Performance Report

OF THE AUSTRALIAN
MINERALS INDUSTRY

2001-2002

health

commitment

people

safety

trends

statistics

benchmark



**MINERALS
COUNCIL**
OF AUSTRALIA

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Definitions

Injury Definitions

FATAL INJURY – (F)

An injury that results in death.

LOST TIME INJURY – (LTI)

An injury that results in a minimum of one full shift's absence (AS1885.1 – 1990).

SEVERE INJURY – (SI)

An injury that results in a minimum of two weeks off work. This definition is used by South Africa as an injury measure.

Rate Definitions

The performance of the minerals industry is measured as a rate, allowing for the comparison of different sectors or years on a comparable basis.

INCIDENCE RATE – (IR)

The number of fatalities or injuries per 1000 employees.

This rate is calculated using the following formula:

$$\frac{(\text{number of occupational fatalities or injuries}) \times (1000)}{(\text{number of employees})}$$

FREQUENCY RATE – (FR)

The number of occupational fatalities or injuries expressed as a rate per million hours worked.

This rate is calculated using the following formula:

$$\frac{(\text{number of occupational fatalities or injuries}) \times (1,000,000)}{(\text{number of hours worked})}$$

FATAL INJURY FREQUENCY RATE – (FIFR)

The number of fatal injuries per one million hours worked.

LOST TIME INJURY FREQUENCY RATE – (LTIFR)

The number of lost time injuries per one million hours worked.

DURATION RATE – (DR)

The average time lost for every lost time injury. This is a measure of the severity of the injuries occurring.

This rate is calculated using the following formula:

$$\frac{(\text{total number of days lost})}{(\text{number of lost time injuries})}$$

SEVERITY RATE – (SR)

The average number of days lost per one million hours worked.

$$\frac{(\text{number of days lost}) \times (1,000,000)}{(\text{number of hours worked})}$$

NUMBER OF HOURS WORKED

The total number of hours worked by employees in the recording unit during the recording period.

SAFETY AND HEALTH

Vision

“An Australian minerals industry **free** of fatalities, injuries and diseases.”

SAFETY AND HEALTH

Beliefs

- All fatalities, injuries and diseases are preventable.
- No task is so important that it cannot be done safely.
- All hazards can be identified and their risks managed.
- Everyone has a personal responsibility for the safety and health of themselves and others.
- Safety and health performance can always improve.

SAFETY

Awareness

“The state of mind where we are constantly aware of the possibility of injury and act accordingly at all times.”

Introduction

The Australian minerals industry is an industry of considerable size and economic and social significance, benefiting all Australians both directly and indirectly.

The mining and minerals processing sector accounted for:

- around 8.5 per cent of national gross domestic product in 2001-02 directly, which also underpins vitally important supply and demand relationships with the Australian manufacturing, construction, banking and financial, process engineering, property and transport sectors;
- the third largest minerals sector by value of any country in the world, which has contributed some \$500 billion directly to Australia's wealth over the past 20 years;
- the value creation of minerals and metals processing in Australia, excluding mining and manufacturing, of around \$10 billion annually, and of around \$250 billion globally;
- the world's leading production of bauxite and alumina, diamonds (by volume), ilmenite, rutile and zircon. Australia is the second largest producer of zinc ore, the third largest producer of aluminium, iron ore, nickel and gold, and the fifth largest coal producer;
- around \$41 billion of Australia's total export revenues in 2001-02, representing approximately 37 per cent of total merchandise exports and 28 per cent of Australia's total exports of goods and services. Australia is the largest exporter of gold, iron ore and black coal in the world.

The Minerals Council publishes annual safety and health data to:

- encourage the industry to seek continuous improvement in safety and health performance;
- determine the minerals industry's performance and trends;
- compare the safety and health performance of the major sectors of the industry;
- provide a benchmark for comparison with other major mining countries;
- recommend strategies to improve the industry's safety and health performance;
- help individual enterprises benchmark their performance;
- compare industry data with that of other recognised Australian sources such as the National Occupational Health and Safety Commission; and
- demonstrate the minerals industry's continuing commitment to improving safety and health performance.

2001-2002 Australian minerals industry Performance at a Glance

- There were seven fatalities in the Australian minerals industry in 2001-02, eight fewer than in 2000-01.
- One miner died for every 29.6 million hours worked in the industry (14.2 million hours in the previous year).
- One miner died for every 13,406 workers employed in the industry (6759 workers).
- 1,859 injuries (2093 injuries) occurred, requiring at least one full shift absence (LTI).
- For each lost time injury, an average of 24 days' absence (20 days' absence) was recorded (duration rate).
- In this reporting year, 211 days (213 days) were lost per million hours worked (severity rate).
- For every million hours worked, nine injuries occurred (11 injuries) that required at least one full shift absence (LTIFR).

This report includes:

- a review of minerals industry safety performance 1992-1993 to 2001-2002 drawn from fatality and injury data collected by State/Territory Mines Inspectorates;
- a review of minerals industry safety and health performance drawn from preliminary workers' compensation claims data collated by the National Occupational Health and Safety Commission for 2000-01; and
- an international benchmarking comparison.

Executive Summary

Fatal Injuries

In 2001-02 there were seven fatalities in the Australian minerals industry. This is eight¹ fewer than the number reported in 2000-01 and is also the equal lowest number of fatalities reported during any year over the past decade.

Over the past decade the Fatal Injury Frequency Rate (FIFR) has varied widely from year to year. In 2001-02 the rate decreased for the second consecutive year to 0.03.

Traditionally the underground mining sectors have recorded the highest FIFRs. Although this is still true for 2001-02, both underground coal and underground metalliferous recorded a substantial reduction in rates. All sectors recorded rates either below or equal to the ten-year average FIFR for all mining.

Of the States, only Western Australia, Queensland and New South Wales reported fatalities. The FIFR has either fallen or remained constant across all States in 2001-02 and all States recorded an FIFR well below their respective ten-year average FIFRs.

Lost Time Injuries

Over the past decade the number of Lost Time Injuries (LTIs) has decreased consistently from year to year. A considerable decrease (11%) in LTIs was reported again in 2001-02.

Similarly, the Lost Time Injury Frequency Rate (LTIFR) has decreased consistently over the past decade and again this year.

By sector, the LTIFR has shown similar patterns to those seen in previous years with the underground coal sector recording by far the highest rate.

By State, the LTIFR also followed historical trends with New South Wales and Tasmania recording the highest rates.

Duration and Severity Rates

In recent years there has generally been an increase in Duration Rates (DR) and Severity Rates (SR). In 2001-02 all sectors with the exception of the extractive industries recorded significant increases in DR. Results for the SR were less consistent with both increases and decreases being reported by sector and State.

Two States (Queensland and Victoria) recorded decreases in DR in 2001-02 with the remaining States generally reporting a significant increase in DR. As with the sector comparison, SRs for the State comparison were less consistent.

Workers' Compensation Claims

In 2000-01, 19 injury/poisoning deaths and two disease deaths were recorded by the mining industry. This compares with 11 injury/poisoning deaths and two disease-related deaths in 1999-2000.

On average injury/poisoning claims accounted for 83% of new workers' compensation claims in 2000-01 with disease claims accounting for the remaining 17% of claims.

The overall cost to the industry in 2000-01 was \$36,318,094 compared to \$31,041,791 in 1999-2000. This remains below the figure of \$40,416,958 recorded in 1996-97. However, these data are preliminary figures and will change over time.

International Comparisons

The Australian minerals industry average FIFR for the ten-year period 1992-93 to 2001-02 was 0.09. Internationally, this compares well with South Africa, which recorded an equivalent rate of 0.36 for this period, and the United States (US), which recorded a rate of around 0.15 for the period.

Lost time injury data are difficult to compare internationally because of the different systems and definitions that apply. Traditionally on this indicator the US has outperformed Australia in the metalliferous and coal sectors. However, for the past few years the Australian minerals industry performance appears to have been better than or comparable with that of the US.

¹ Note that in the 2000-01 Safety and Health Performance Report 14 fatalities were reported. This figure has been increased to 15 due to an additional fatality being attributed to the minerals industry in NSW (see Description of Fatalities – Update).

Commitment to Safety and Health

Safety and health continues to be the mineral industry's highest priority. The strong leadership demonstrated by industry CEOs and encouraged at all levels has made a significant impact on reducing fatalities and lost time injuries to all time lows in 2001-02.

A comprehensive work program by the Safety and Health Committee during 2002 continued to focus on leadership, recognition, risk management and learning and continuous improvement as the major drivers for improving safety and health performance.

Areas identified for specific focus in 2003 and beyond include enhancing the health of the workforce and optimising the adoption of best practice occupational health and safety management. These new initiatives will be additional to ongoing core activities.

Striving for the Vision

A number of initiatives were developed and implemented during the year in addition to the regular activities scheduled by the Council.

External Review

A broad external review of the safety and health program of the Minerals Council of Australia was undertaken by an independent consultant. A key objective of the review was to assess whether the OHS activities currently being pursued are consistent with the activities and programs that the MCA should be conducting to achieve its safety and health goals and vision. The Review provided advice on how existing programs might be further refined and enhanced as well as identifying new initiatives and activities for consideration in future planning. The Review provided a useful input to the 2003 business planning process of the Safety & Health Committee.

National Rockfall Management Guideline

Recognising rockfalls are a major hazard in underground mines with consequences ranging from insignificant to catastrophic fatalities, the MCA at the request of industry CEOs commissioned the development of national rockfall management guidelines. It is envisaged that a step improvement in the overall safety record of the Australian mining industry will result from the elimination of rockfall injuries and fatalities.

At the end of December 2002, a final draft of a Guideline for the metalliferous sector was available and a user's manual to accompany the Guideline was well advanced. Work is continuing on a separate guideline for the coal sector.

MINEX Awards

The National Minerals Industry Excellence Awards for Safety and Health – the MINEX Awards – have been developed to give recognition to excellent performance, identify and share leading practice and foster continuous improvement of safety and health at minerals sites throughout Australia.

The eighth MINEX Awards presentation saw Pasminco Century Mine take out the major 2002 award at a dinner held in conjunction with the NSW minerals industry's *Safe Mining – Healthy Business* conference at Terrigal, NSW. The 2002 MINEX Awards process was deemed a success with close to record numbers of both applicant sites and evaluators.

The MCA published the MINEX case study on Pasminco Century Mine to promote sharing of leading practice and benchmarking. The publication provides a detailed analysis of the Century Mine operation, as well as outlining the strengths of all other participating operations.

National Minerals Industry Risk Assessment Guideline

The Minerals Industry Safety and Health Centre (MISHC) was commissioned by the MCA to develop a National Minerals Industry Risk Assessment Guideline. The aim of this initiative was to improve the quality of risk assessment in the Australian minerals industry. The Guideline is publicly available as an on-line resource to help individuals design and undertake risk assessments from the informal to the formal.

The Guideline is outcome-based rather than prescriptive and wherever possible makes use of case studies and lessons learned. The critical importance of scope in designing any risk assessment is highlighted in the Guideline.

The MCA and MISHC are committed to regularly reviewing the Guideline and updating as appropriate, taking into account feedback from users.

National Safety and Health Innovation Awards

The National Safety and Health Innovation Awards specifically recognise and promote safety and health innovation, and are designed to advance the development of innovative solutions to everyday safety and health issues.

Now in their fourth year, the 2002 Safety and Health Innovations Award winner was the Evans roller frame, developed by MIM's Carpentaria Gold – Ravenswood Operations. In addition, the Dozer fall protection frame developed by Coal and Allied's Mt Thorley Operations was highly commended. Special recognition was also given to two operations, MPI's Stawell Gold Mines and Coal and Allied's Mt Thorley Operations, for fostering a culture of safety and health innovation on-site and continued support of minerals industry safety and health innovation.

All finalists appear in an Innovation Profiles booklet (available from the MCA's website). The booklet has been widely distributed to promote the innovations as broadly as possible and to encourage similar searches for solutions to other safety problems.

Australian minerals industry safety and health self-evaluation tool

Formerly called the MINEX self-assessment tool, the Safety and Health Self-Evaluation Tool has been finalised and published. The tool is aligned with the MINEX evaluation criteria and assists specific minerals operations obtain a snapshot of their current performance. The site-specific assessment can be used as a basis for comparing performance with recognised leading practice. Annual reporting by a number of sites within the one company can assist that company in benchmarking safety and health performance. The tool also has the potential to assist in benchmarking the safety and health performance of the industry as a whole.

National conference on Quality Front Line Supervision

The MCA's 2002 national safety and health conference focussed on the role of the front line supervisor in managing safety. Conference participants explored the challenges faced by companies in achieving consistent and effective performance from their supervisors. The focal point of the conference was the panel discussion in which both managers and supervisors were provided an opportunity to share their experiences and communicate their roles and perceptions of front line supervision. The day emphasised that effective supervisors bring direct benefits to any operation in the form of productivity gains, cost efficiencies, improved product quality and improved safety and health performance.

Health priorities report

The MCA's safety and health program has previously focussed primarily on safety, in recognition of the paramount importance of eliminating fatalities. To increase the focus on health, some preliminary work has been undertaken to help identify the potential importance of workplace health issues within the industry and to acquire an overview of the health issues facing the industry. The MCA has recently established a Health Working Group to identify the criticality of health issues within the industry and where necessary develop guidelines and performance measures.

Positive Performance Measures: a practical guide

To complement the traditional industry outcome measures such as Lost Time Injury Frequency Rate, fatality frequency rate and disabling injury frequency rate, the MCA has produced a Guide to assist in the site specific development of positive performance measures (PPMs). PPMs will assist companies examine the processes leading to fatalities, injuries and illnesses and help in the adoption of pro-active measures to improve safety and health performance.

The Guide has been widely distributed throughout the year to promote the use of PPMs and assist site personnel to develop their own PPMs applicable to their needs and objectives. The four-page leaflet is available from the MCA website or in hard copy format from the secretariat.

Safety and health performance reporting

The MCA continued to facilitate and publish national safety and health performance statistics on a quarterly and annual basis with the assistance of its member companies, State government departments and other industry bodies. Some relevant international statistics were also published.

The quarterly *Safety Survey Report* provides national information on the safety performance of the industry, based on returns from MCA member companies. The Australian minerals industry has yet to achieve its vision and number one priority of zero fatalities.

Safety Share

Safety Share, an internet-based database and alert system for potential and actual significant incidents in the minerals industry is currently in pilot phase. At this stage in the development of the database, access is only available to member companies.

Industry presentations

Awareness of the MCA's safety and health objectives, activities and performance is an important aspect of the secretariat's work. A significant number of speeches and presentations were given during 2002 at a variety of events including the Queensland Mining Industry Health and Safety Conference, a Safety and Quality Council workshop and the Northern Territory Safety and Health Conference. In addition, two presentations were given at different National Occupational Health and Safety Commission fora. Internationally, the MINEX Safety and Health Excellence Awards formed part of the inventory of schemes in the *Recognition schemes of good practice in the field of OSH*, published by the European Agency for Safety and Health at Work.

About the data used in this Report (2001-2002)

This report used data primarily from two different sources and for two different time periods:

- The primary, most comprehensive and current data are collected through the State/Territory mines inspectorates (usually located in a mining department) and from companies directly which do not report to their State mines inspectorate because the department does not hold jurisdiction over that sector (eg Queensland, NSW, Victoria do not incorporate smelter/refinery data). This report contains 2001-2002 data from these sources.
- The second data set is from the National Occupational Health and Safety Commission (NOHSC) collected through State workers' compensation authorities. This report contains 2000-01 data (the most recent available) from this source.

Both sets of data have their limitations as detailed below, but used together they can provide a more complete picture of the minerals industry's safety and health performance.

The sources of international data included in this report are also described below.

Mines inspectorate data – parameters and limitations

These data are supplied to inspectorates directly by mines. In most States/Territories reporting is a mandatory requirement of mining safety and health regulation.

In the New South Wales coal industry, data are collected by Coal Services Pty Ltd (formerly known as the Joint Coal Board) through the industry coal mines insurance scheme. All compensatable injuries and disease are captured in this system. Companies supply denominator data (numbers of employees and hours worked) to Coal Services on a quarterly basis.

Some inconsistencies are present in the data. The various State/Territory inspectorates have different jurisdictional scopes and, as a result, each has a unique definition of what constitutes the mining industry. Some States/Territories include smelters/refineries, extractive industries and exploration activities within their scope. In other States/Territories these activities may be completely or partially excluded.

For the purposes of this report, data have been collected in a way that permits separation into the identified minerals sectors, and in most cases State inspectorates were able to provide data in a manner consistent with guidelines supplied by the Minerals Council.

The only difficulty related to the smelting/refinery sector where, except for Western Australia, Tasmania, the Northern Territory and South Australia, data were gathered directly by the Minerals Council of Australia from individual companies.

In summary, the limitations of data contained in this report from the State mining inspectorates include:

- reliance on mines submitting accurate data;
- variations in coverage by inspectorates of minerals sectors in each State; and
- exclusion of disease cases.

NOHSC data – parameters and limitations

The following limitations apply to data collected by the National Occupational Health and Safety Commission (NOHSC) from claims for workers' compensation made under the Commonwealth, State and Territory Workers' Compensation Acts:

- Only cases compensated under general Commonwealth, State and Territory workers' compensation legislation are included. Excluded, therefore, are occurrences covered under separate legislation for specific groups of workers.
- The data include fatality, permanent disability or temporary disability involving an absence from work of five working days or more (Victoria, however, has estimated the number of workers' compensation cases resulting in five or more days' lost time as it currently reports cases of ten or more days' absence).
- Differences in the State workers' compensation arrangements may impact on attempts to make comparisons between States (for example, different definitions of compensatable deafness cases exist in each State).
- Data for the ACT are not available.
- The data has been adjusted to adhere to NOHSC's confidentiality policy. This includes the suppression of small cell values to ensure that confidential information about employers and employees is protected.
- The data presented here are preliminary and subject to revision.
- The use of Australian Bureau of Statistics (ABS) estimates of numbers employed and subsequent calculations of hours worked can produce errors by underestimating or overestimating incidence and frequency rates.

The NOHSC reports according to ANZSIC Classification. The ANZSIC Mining Division includes the following sub-divisions:

- Coal mining, including black and brown coal mining;
- Oil and gas extraction;
- Metal ore mining, including iron ore mining, bauxite mining, copper ore mining, gold ore mining, mineral sand mining, nickel ore mining, silver, lead zinc ore mining;
- Other mining, including construction material mining (such as gravel and sand quarrying);
- Services to mining, including petroleum and mineral exploration and contracting activities.

About the international statistics

When reporting international accident statistics there are limited data readily available for direct comparisons and benchmarking. The injury data are often presented using different criteria, depending on each country's legislative reporting requirements. Consequently, some of the data used in this section have been adjusted to provide a comparison of performance.

This report compares injury rates for three countries. It is necessary to recognise that the statistical data have some differences due to variations in the definition of injury, country culture and degree of reporting.

These variables are difficult, if not impossible, to take into account. Therefore, the data presented are assumed to be of equivalent quality, but care should be exercised when making direct comparisons or drawing any conclusions. Nonetheless, the analysis below should provide a reasonable indication of the relative qualitative safety performance of the countries concerned.

The **US** data are reported annually by the US Mine Safety and Health Administration. The US injury data for open-cut and underground mining are for production mining, which excludes office and support workers. Figures for the total sector (e.g. the coal sector) include the injury profile of office and administration workers. Due to lower injury rates experienced in the administration sector, inclusion of these data will act to underestimate miners' injury rates in the mining sectors. Data for 2002 is only available for January to September.

The **South African** injury data have been obtained from information courtesy of the South African Department of Mines.

Ontario, **Canada**, injury data have been collected from the Ontario Mines and Aggregates Safety and Health Association. *Ontario does not have a coal mining industry*, hence only comparisons to metalliferous sectors are possible.

The qualitative comparison refers to averages when comparing fatality rates. As the number of fatalities is a relatively small figure and can fluctuate significantly, particularly in the case of a multiple fatality incident, it is thought that an average taken over a number of years provides a better basis for comparison. However, the years over which the average is taken varies due to different data availability in each country. For example, while South African data are averaged over 1989 to 2002, Ontario data are only available for the past four years.

Links

Provided below are links to organisational and government web sites that provide information and data on mining-related health and safety activities in Australia and overseas.

US

- Mines Safety and Health Administration
www.msha.gov
and
www.msha.gov/fatals/fab.htm²

South Africa

- South African Department of Minerals and Energy
www.dme.gov.za

Canada

- Ontario Mining Association
www.oma.on.ca
- Mining and Aggregates Safety and Health Association
www.masha.on.ca

UK

- Health and Safety Executive
www.hse.gov.uk

Australia

- National Occupational Health and Safety Commission
www.nohsc.gov.au
- Minerals Industry Safety and Health Centre
www.mishc.uq.edu.au
- Minerals Council of Australia
www.minerals.org.au

² Fatal alert bulletins and fatalgrams are part of the Mine Safety and Health Administration's program to alert the minerals industry in a timely manner of a tragic loss of life in the mines. The information is provided to organisations and individuals who may be able to enhance safety awareness in the industry.

Data from the mines inspectorates 2001-2002

Fatality Statistics

Seven fatalities were recorded by the Australian minerals industry in 2001-02. This figure is substantially down on the number of fatalities recorded by the industry in 2000-01 (15 fatalities) and 1999-2000 (19 fatalities). During the past decade the industry has recorded 181 fatalities, an average of more than 18 deaths a year. The number of fatalities has varied widely from year to year, ranging from a low of seven in 1995-1996 and the current year, to a high of 33 in 1996-1997.

During 2001-02 the highest number of fatalities per sector, two, was reported by the underground metalliferous sector. The underground metalliferous sector also shared the highest number of fatalities in 2000-01 (four fatalities) along with the open-cut metalliferous sector. In 2001-02 underground coal, open-cut coal, open-cut metalliferous, extractive industries and smelting/refining each recorded one fatality.

The exploration services industry remained fatality-free this year, continuing a three-year trend. The first fatality in five years was recorded by the smelting/refining sector in 2001-02. During the year the extractives industry also recorded a single fatality, down on the two fatalities recorded in each of the two previous years.

TABLE 1: **Fatalities by sector**

	2001-02	2000-01	1999-2000
Open-cut coal	1	0	1
Underground coal	1	5	4
Open-cut metalliferous	1	4	2
Underground metalliferous	2	4	10
Extractive industries	1	2	2
Smelting/refining	1	0	0
Exploration	0	0	0
Total	7	15	19

In recent years underground mining activities have accounted for a large proportion of total fatalities. In 2001-02 this continued to be the case, with underground mining activities recording three of the seven fatalities.

Typically, a very high proportion of total fatalities is recorded by the three most active mining States – Western Australia, Queensland and New South Wales. This trend has continued in 2001-02, with Western Australia recording three fatalities and Queensland and New South Wales recording two fatalities each. South Australia, Victoria, Tasmania and the Northern Territory recorded no fatalities in 2001-02.

Though no trends in the total number of fatalities recorded annually have emerged, the number of fatalities during each of the last two years has been substantially below the average annual number of fatalities for the decade.

In 2001-02 it is likely that three fatalities could be attributed to mobile equipment, and two fatalities may be attributed to each of rockfall/roof fall and electrocution. Traditionally vehicle/mobile plant incidents, rockfall/roof falls and slips, trips and falls have been the three primary mechanisms of fatal injuries (cf *Fatalities in the Australian Minerals Industry 1990-1991 to 1999-2000: a retrospective analysis*, Minerals Council of Australia, December 2002).

Fatality Incidence Rate (FIR)

In 2001-02 the national minerals industry fatality incidence rate (FIR – fatalities per 1,000 employees) was 0.07, down 53% compared to the rate of 0.15 recorded in 2000-01.

CHART 1 **Fatal injuries 1992-93 to 2001-02**

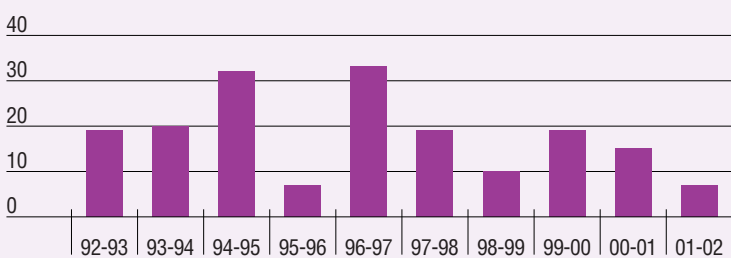


CHART 2 **Fatal injuries by sector 2001-02**

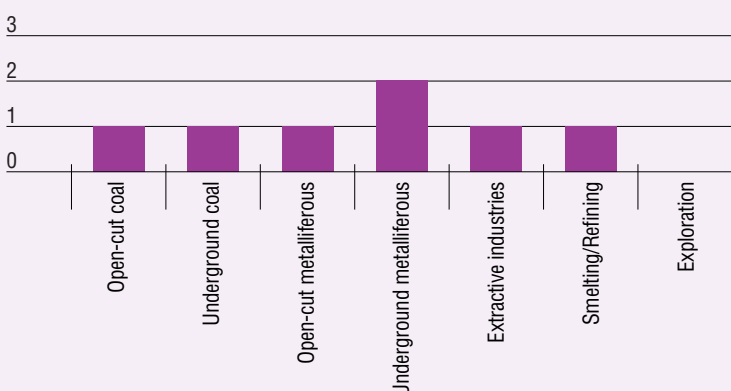
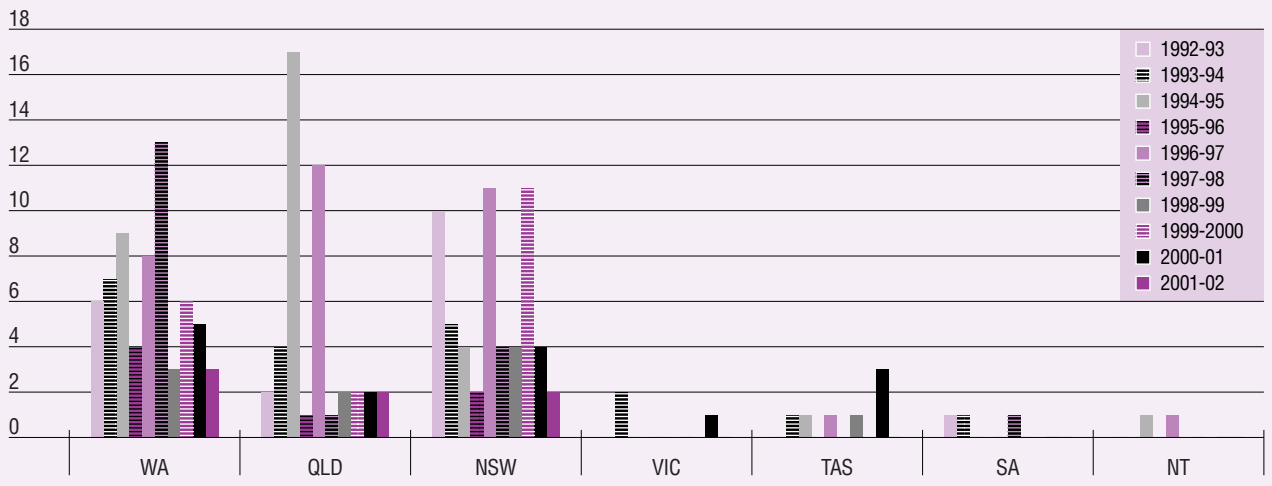


CHART 3 Number of fatalities by State 1992-93 to 2001-02



By sector, the FIR ranged from a high of 0.18 recorded by the underground metalliferous sector, to a low of zero recorded by the exploration services sector. In other sectors the extractives industries, and underground coal recorded relatively high rates of 0.17 and 0.12 respectively, whereas open-cut metalliferous, smelting/refining and open-cut coal each recorded low rates of 0.03, 0.06 and 0.07 respectively. The 2001-02 rates display a similar pattern to that seen in 2000-01 where underground metalliferous and the extractives industries also recorded relatively high FIRs of 0.34 and 0.31 respectively. A substantial improvement has been seen in the underground coal sector where the rate has fallen 75% from a rate of 0.49 recorded last period.

By State, the highest FIR was recorded in New South Wales (0.12), followed by Queensland (0.10) and Western Australia (0.7). All other States recorded an FIR of zero. Each of the States recorded similar FIRs during 2000-01 with the exception of Tasmania and Victoria who recorded relatively high FIRs of 0.63 and 0.18 respectively.

Fatal Injury Frequency Rate (FIFR)

The risk of fatalities is measured by the Fatal Injury Frequency Rate (FIFR – the number of fatal injuries per one million hours worked).

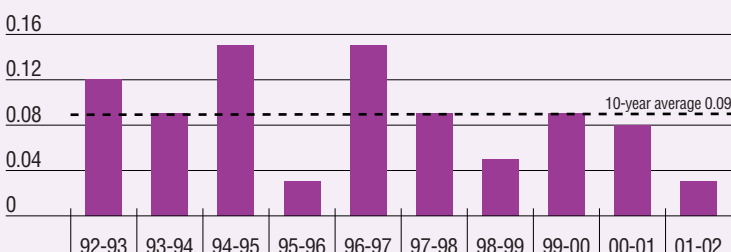
The national FIFR in 2001-02 was 0.03 per million hours worked, a reduction of 63% from the previous year. Although an FIFR of 0.03 is well below the ten-year average FIFR of 0.09, rates have fluctuated widely from year to year and a consistent downward trend has not emerged. Despite this, the FIFR has remained below the ten-year average for the past two years.

SECTOR PERFORMANCE

In 2001-02, most sectors recorded a significant decrease in FIFR. Although underground mining activities have traditionally experienced relatively high rates, both the underground coal and underground metalliferous sectors experienced significant reductions in rates during 2001-02 – underground coal recorded a 80% reduction down to 0.06 and underground metalliferous recorded a 51% reduction down to 0.07. In other sectors, open-cut metalliferous recorded a 74% reduction in FIFR down to 0.01 and the extractives industries recorded a 45% reduction with a rate of 0.09.

Two exceptional sectors were open-cut coal which recorded an increase from zero to 0.03 and smelting/refining which recorded rate of 0.02, its highest recorded rate in five years.

CHART 4 Fatal Injury Frequency Rate 1992-93 to 2001-02



All sectors recorded an FIFR either equal to or below the total industry ten-year average of 0.09.

TABLE 2: Australian minerals industry Fatal Injury Frequency Rate

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	Average
Open-cut coal	0.07	0.07	0.03	0.06	0.03	0.03	0.04	0.04	0.00	0.03	0.04
Underground coal	0.13	0.10	0.58	0.05	0.41	0.05	0.11	0.22	0.29	0.06	0.20
Total coal	0.09	0.08	0.26	0.06	0.18	0.04	0.07	0.11	0.11	0.04	0.10
Open-cut metalliferous	0.06	0.05	0.12	0.00	0.07	0.02	0.02	0.03	0.05	0.01	0.04
Underground metalliferous	0.30	0.15	0.23	0.10	0.46	0.39	0.14	0.37	0.15	0.07	0.24
Total metalliferous	0.13	0.08	0.15	0.03	0.17	0.12	0.05	0.10	0.08	0.03	0.09
Extractive industries		0.46	0.20	0.00	0.00	0.09	0.00	0.13	0.17	0.09	0.13
Smelting/refining		0.04	0.02	0.02	0.05	0.00	0.00	0.00	0.00	0.02	0.02
Total Industry*	0.12	0.09	0.15	0.03	0.15	0.09	0.05	0.09	0.08	0.03	0.09

* "Total industry" includes exploration

CHART 5 Fatal Injury Frequency Rate By sector 1992-93 to 2001-02

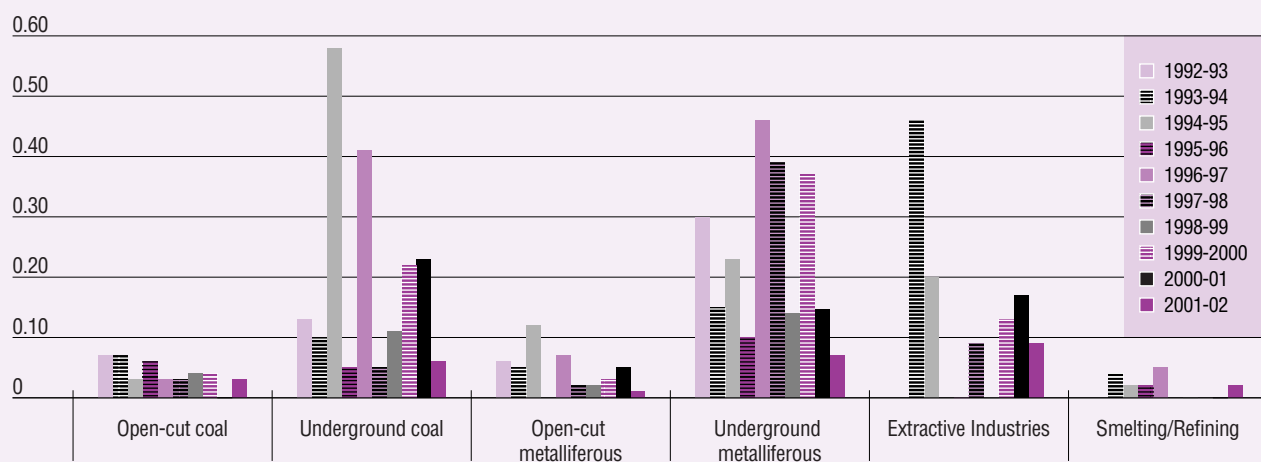


CHART 5a Australian minerals industry Fatal Injury Frequency Rate 1992-93 to 2001-02

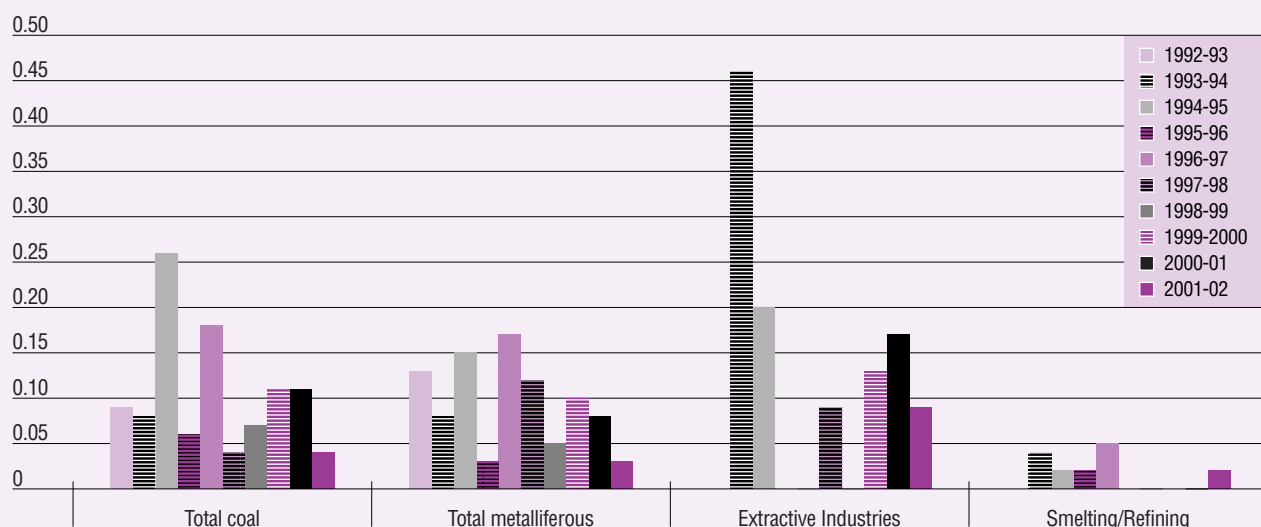


CHART 6 Fatal Injury Frequency Rates by State 1992-93 to 2001-02



STATE/TERRITORY PERFORMANCE

In 2001-02 the highest number of fatalities per million working hours was recorded by New South Wales with a rate of 0.06. This rate is also the lowest FIFR recorded for the State in six years. Queensland recorded an FIFR of 0.04 in 2001-02, the same rate recorded for the previous three years. Western Australia recorded an FIFR of 0.03 which equals the lowest rate recorded for Western Australia during the last decade. All other States recorded an FIFR of zero. During 2000-01 Tasmania and Victoria had recorded the highest rates of 0.36 and 0.12 respectively.

All States recorded FIFRs lower than their respective ten-year average rates.

Description of Fatalities

Western Australia

EXTRACTIVES INDUSTRIES – 27 AUGUST 2001*

- Mr Howard Harvey, a supervisor, died when he was caught in the mechanism of a machine designed to form and place reconstituted limestone blocks.

OPEN-CUT METALLIFEROUS – 11 JULY 2001*

- Mr Shane Ricki Tipa (30), an equipment hire company representative, sustained fatal injuries while attempting to manoeuvre an extendable work platform into a trailer. He was thrown from the work basket when the extendable work platform travelled beyond the trailer's point of balance and rolled off the end of the trailer.

UNDERGROUND METALLIFEROUS – 30 MAY 2002*

- Mr Christopher Harris, a drill jumbo operator, was found unconscious next to an open electrical switchbox at a level off the decline.

Queensland

OPEN-CUT COAL – 12 APRIL 2002

- Mr Chris Belfield (49), an employee of Ergon Energy died from crush injuries when he was struck by a jib of a loading crane mounted on his truck.

UNDERGROUND METALLIFEROUS – 3 MAY 2002

- Mr Shane Prowse (33), died from crush injuries received from a rock fall underground while he was charging up in a development heading.

New South Wales

SMELTING/REFINING – 11 NOVEMBER 2001

- Mr Russell Morris (39), an electrician, was carrying out live testing on the upper section of the furnace tending assembly in bake ovens 1 at the time of his death.

UNDERGROUND COAL

- Mr Graham Jordan (58), died from injuries sustained after a fall of roof.

Description of fatalities – previous years' update

New South Wales

UNDERGROUND COAL – 15 NOVEMBER 2000

- Mr Robert James Hamilton suffered a heart attack and died after completing some underground roof bolting work.

* WA fatal accident reports may be found on the WA Department of Industry and Resources' EXIS page located at www.doir.wa.gov.au/safety

Lost Time Injury statistics

In 2001-02 the number of lost time injuries (LTIs) decreased 11% to 1,859. This decrease has continued a consistent downward trend in the number of LTIs recorded annually.

Over the decade the number of LTIs has decreased 66% from 5,408 to 1,859.

The Lost Time Injury Frequency Rate (LTIFR – number of Lost Time Injuries per million hours worked) is a measure of the risk of LTIs. During the past decade the LTIFR has decreased consistently from year to year, though it has done so at a slowing rate. Last year's report noted that the decrease between 1999-2000 and 2000-01 had been only very small (0.78 per million hours worked) and that rates may have been levelling off. In 2001-02, however, an LTIFR of nine was recorded, a 19% decrease on the previous year.

Over the decade the LTIFR has decreased 73% from 33 to nine.

The 1993-1994 to 2001-2002 LTI statistics include the extractive industries and refinery sectors, which previously were only partially reported to the State/Territory Mines Inspectorates. As noted in previous years, the impact of this on the underground and open-cut metalliferous data is difficult to determine.

Sector performance

In 2001-02 the number of LTIs in the coal sector fell 16% from the previous year to 784. Within the coal sector, underground coal experienced the most LTIs (526) followed by open-cut coal (248) and brown coal (10). These proportions within the sector are in line with results seen in previous years. The coal sector also recorded a significant reduction in LTIFR which fell 25% to 16 in 2001-02. This result was the lowest recorded for the coal sector for the decade. Underground coal recorded an LFIFR of 31, open-cut coal recorded an LTIFR of eight and brown coal recorded an LTIFR of four. All of these rates represent decreases compared to the previous year's rates.

The metalliferous sector recorded 652 LTIs in 2001-02, down 20% from 816 last period. Within the metalliferous sector, open-cut metalliferous experienced the most LTIs (402) followed by underground metalliferous (250). Once again, these proportions within the sector are in line with results seen in previous years. The metalliferous sector also recorded a significant reduction in LTIFR which fell 22% to a rate of six in 2001-02. Similar to coal sector results, this rate was the lowest recorded for the metalliferous sector for the decade. Open-cut metalliferous recorded an LTIFR of 5 (down slightly from 6 last period) and underground metalliferous recorded an LTIFR of 9 (down from twelve in 2000-01).

CHART 7 Lost Time Injuries 1992-93 to 2001-02

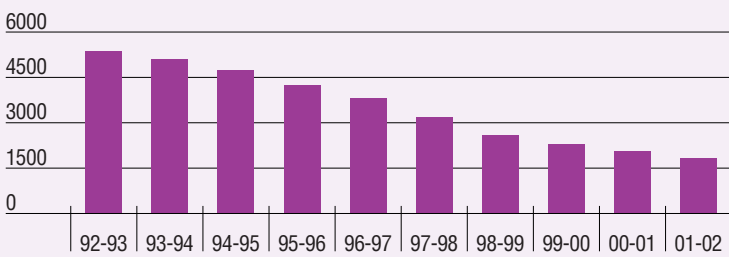


CHART 8 Australian minerals industry Lost Time Injuries by Sector 2001-02

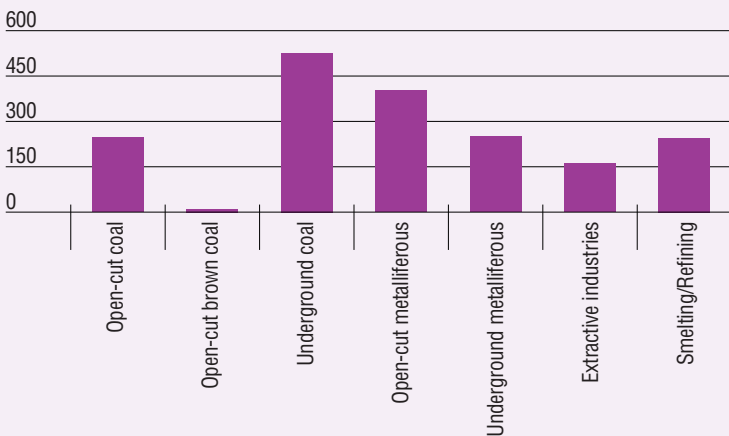


CHART 9 Lost Time Injury Frequency Rate 1992-93 to 2001-02

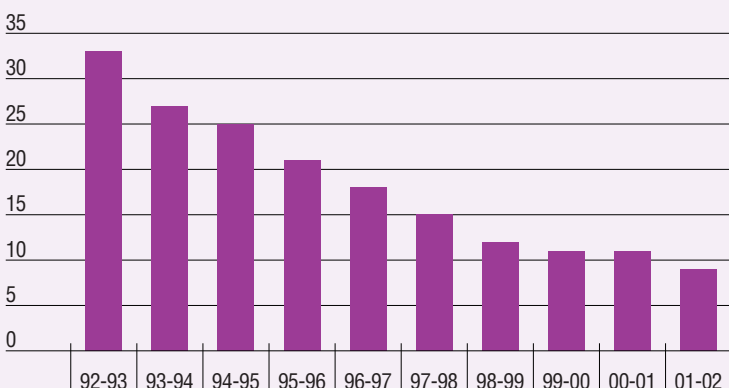


CHART 10 Lost Time Injury Frequency Rates by sector 1992-93 to 2001-02

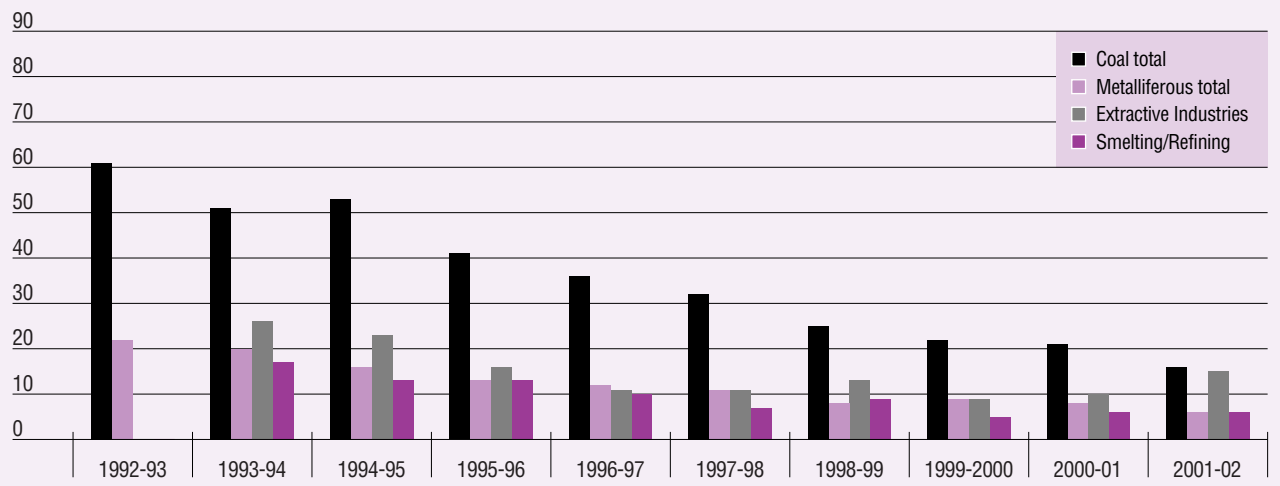
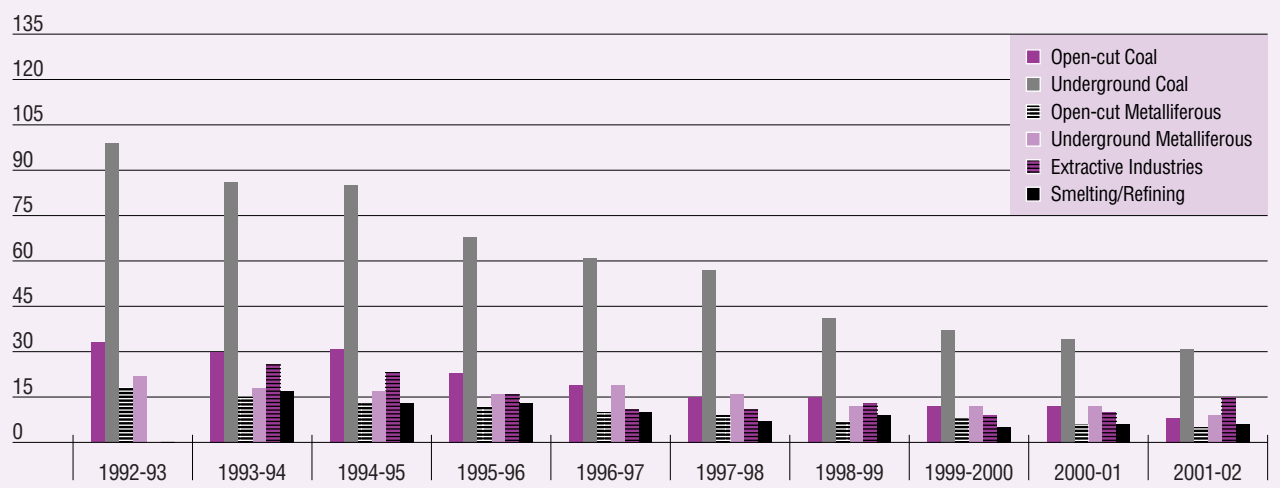


CHART 11 Lost Time Injury Frequency Rates by sector 1992-93 to 2001-02



Unlike the coal and metalliferous sectors, the extractives industries and smelting/refining sector both recorded increases in LTIs. Extractives industries recorded 162 LTIs in 2001-02, up 45% on last period's results. Smelting/refining recorded 245 LTIs, up 13% on last period. The LTIFR for the Extractives industries increased, moving from 10 in 2000-01 to 15 in 2001-02. The LTIFR for the smelting/refining industries decreased by 2% but remained at six when rounded to zero decimal places.

The exploration sector recorded a decrease in the number of LTIs (decreasing from 20 last period to 16 in 2001-02), and the LTIFR also decreased slightly from 12 last period to 11 in 2001-02.

State/Territory Performance

During 2000-2001 the number of LTIs decreased across all States/Territories with the exception of South Australia, which experienced a 77% increase in LTIs from 35 to 62. Reductions in other States were as follows: Tasmania – 28%, Western Australia – 20%, Victoria – 19%, New South Wales – 11%; Northern Territory – 5% and Queensland – 1%. Interestingly, Tasmania, which was the only State to record an increase last period, recorded the highest decrease this period.

All States/Territories reported a decline in LTIFR in 2001-02, again with the exception of South Australia, which recorded a 120% increase from four in 2000-01 to nine in 2001-02. The greatest decrease in LTIFR, recorded by Victoria, was 28% (down to six from eight last period).

CHART 12 Number of Lost Time Injuries by State 1992-93 to 2001-02

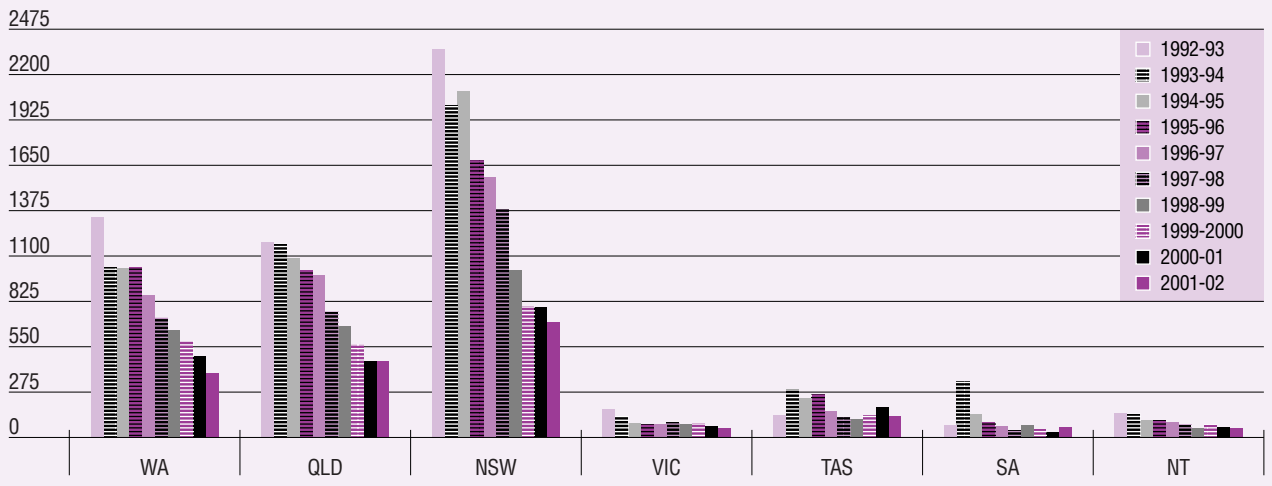


CHART 13 Lost Time Injury Frequency Rate by State 1992-93 to 2001-02



This continues a reasonably consistent downward trend for the State over the decade. Victoria was closely followed by Tasmania and Western Australia which both recorded 24% reductions on last period's results. While this reduction continues a downward trend in LTIFR for Western Australia, Tasmania's LTIFR has been more variable over the decade, recording its lowest rate of 13 in 1997-98 and 1998-99. Queensland, New South Wales and the Northern Territory also recorded significant reductions of 19%, 13% and 11% respectively.

All States/Territories recorded a rate below their respective ten-year average LTIFRs.

Sector by State/Territory

METALLIFEROUS

In the open-cut metalliferous sector in 2001-02 all States recorded an LTIFR lower than their respective ten-year average rates with the exception of Victoria. Victoria recorded a rate of 22, its highest rate since 1997-98, and a significant increase from the rate of zero recorded in 2000-01 and seven recorded in 1999-2000. The next highest rate was recorded by South Australia, 19. Once again, this was the highest rate recorded for the State in five years and is a substantial increase on last period's rate of 11. Tasmania recorded a rate of 15 which was the lowest rate recorded for the State over the last decade and also less than half the rate of 33 recorded in 2000-01.

The Northern Territory recorded a relatively good result – seven – compared to recent years. Queensland, Western Australia and New South Wales each recorded their lowest rates for the decade of eight, four and one respectively.

Underground metalliferous experienced more consistent results with all States recording LTIFRs well below their respective ten-year average rates. Two States recorded slight increases over last period's results. Victoria's rate increased from nine in 2000-01 to 10 in 2001-02, though a result of 10 is still the second lowest rate recorded over the decade. The Northern Territory's rate increased from seven last period to nine in 2001-02. Of the remaining States, New South Wales, Tasmania and South Australia recorded the most substantial decrease in rates, with decreases of 42%, 39% and 39% respectively. Western Australia and Queensland recorded small decreases in their LTIFRs with rates of six and nine respectively.

COAL

In the open-cut coal sector in 2001-02 several States recorded significant reductions in LTIFR, continuing generally consistent downward trends for those States – Western Australia, New South Wales and Queensland all recorded reductions between 31% and 38%. Victoria (brown coal only) began the decade with rates well below those recorded for all other States/territories. It recorded particularly low rates during 1995-96 to 1997-98, but then experienced increased rates for the following three years.

In 2001-02 Victoria has recorded its first reduction in five years with the rate falling from 11 last period to just four this period. South Australia and Tasmania have displayed similar patterns, with both States recording LTIFRs of zero in 1999-2000 and then experiencing large increases up to eight and 10 respectively the next period. In 2001-02 South Australia's rate remained constant at eight while Tasmania again recorded a substantial increase (244%) up to 34. Despite the various increases and decreases in LTIFR, all States recorded rates below their respective ten-year average rates.

Only three States were involved in underground coal activities during 2001-02 and each of these States recorded an improvement in their respective LTIFR. Tasmania's rate, though decreasing substantially this year to 17 (53%) has been highly volatile over the decade. On four occasions over the decade it has recorded a rate of zero, yet last period it recorded a rate of 35. Both Queensland and New South Wales, recorded decreases to 18 (by 17%) and 38 (by 10%) respectively, continuing a very consistent downward trend in rates for both States.

It should be noted that the LTIFR of States with small mining sectors, such as the Tasmanian open-cut and underground coal sectors, can be significantly affected by a very small variation in the number of LTIs, and thus they can appear to have highly erratic results.

TABLE 3: Australian minerals industry Lost Time Injuries by sector 2001-02

Sector	WA	QLD	NSW	VIC	TAS	SA	NT	AUST
Open-cut coal	20	96	126	2	1	3	—	248
Open-cut brown coal	—	—	—	10	—	—	—	10
Underground coal	—	112	412	—	2	—	—	526
Coal total	20	208	538	12	3	3	—	784
Open-cut metalliferous	243	106	2	3	8	21	19	402
Underground metalliferous	58	64	52	7	45	3	21	250
Metalliferous total	301	170	54	10	53	24	40	652
Mining total	321	378	592	22	56	27	40	1436
Extractive industries	16	25	57	30	1	27	6	162
Smelting/refining	43	58	50	3	75	8	8	245
Other*	12	—	—	0	—	—	4	16
ALL	392	461	699	55	132	62	58	1859

* Not included in totals

EXTRACTIVES

The LTIFR for the extractives industries has traditionally been quite volatile, and 2001-02 is no exception. Across the States/territories Western Australia recorded a reduction in LTIFR down 16% to 10. Though this rate is below the ten-year average rate for Western Australia, it is still well above its lowest rate of three recorded in 1998-99. Victoria was the only other State/territory to record a reduction in LTIFR in 2001-02 with a small reduction from 15 last period to 14 this period. Of the States to record an increased LTIFR, the most significant increase was recorded by the Northern Territory which moved from zero up to 16. The Northern Territory was closely followed by New South Wales which recorded a 241% increase from six last period to 20. Queensland and South Australia also increased substantially to 11 and 21 respectively.

These increases in LTIFR in a majority of States have led to an increase of 52% in the LTIFR for the extractives sector nationally.

SMELTING/REFINING

Smelting/refining as a whole recorded an LTIFR of six this period, remaining constant compared to last period. Two States/territories recorded increases in 2001-02: Queensland's LTIFR increased 131% to seven and South Australia's rate increased from one last period to three this period. Other States/Territories all reported slight decreases on last year's results.

TABLE 4: Lost Time Injury Frequency Rate by sector 1992-93 to 2001-02

Mining Method	State	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02	
Open-cut metalliferous	WA	16	13	12	12	9	8	7	7	5	4	
	QLD	20	13	16	11	13	12	8	10	9	8	
	NSW	16	24	38	18	17	11	10	10	4	1	
	VIC	27	38	20	22	10	24	18	7	0	22	
	SA	59	42	17	4	19	6	6	12	11	19	
	TAS	100	104	68	68	57	18	16	17	33	15	
	NT	18	13	11	7	5	7	7	9	11	7	
Average		18	15	13	12	10	9	7	8	6	5	
Underground metalliferous	WA	29	21	24	18	14	9	7	7	7	6	
	QLD	19	22	18	20	22	19	16	14	10	9	
	NSW	18	13	10	9	30	32	22	16	23	13	
	VIC	29	29	18	20	45	30	14	11	9	10	
	SA	16	9	11	4	4	2	3	2	3	2	
	TAS	28	14	16	20	17	18	19	27	27	16	
	NT	66	17	12	14	14	8	8	11	7	9	
Average		22	18	17	16	19	16	12	12	12	9	
All metalliferous	WA	17	14	14	13	10	8	7	7	5	5	
	QLD	19	19	17	15	17	15	10	11	10	8	
	NSW	17	14	13	10	24	21	16	14	18	10	
	VIC	14	35	19	22	24	28	15	10	8	12	
	SA	23	17	13	4	10	15	4	4	5	9	
	TAS	39	26	23	24	19	18	19	25	28	16	
	NT	22	14	11	9	8	7	7	9	9	8	
Average		22	20	16	13	12	11	8	9	8	6	
Open-cut coal	WA	88	65	91	61	41	32	29	16	28	17	
	QLD	32	26	22	17	13	8	7	7	7	5	
	NSW	30	33	43	31	29	31	27	21	22	14	
	(Brown Coal only)	VIC	19	16	7	4	3	5	8	9	11	4
		SA	28	23	24	14	11	0	5	0	8	8
		TAS	61	54	23	52	19	0	0	0	10	34
		NT										
Average		33	30	31	23	19	15	15	12	8	8	

TABLE 4: Lost Time Injury Frequency Rate by sector 1992-93 to 2001-02 (continued)

Mining Method	State	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-00	2000-01	2001-02
Underground coal	WA	300	157								
	QLD	68	74	68	60	62	39	29	27	22	18
	NSW	104	88	90	71	61	65	48	43	42	38
	VIC										
	SA										
	TAS	33	0	34	9	0	0	0	8	35	17
NT											
Average		99	86	85	68	61	57	41	37	34	31
All coal	WA	130	78	91	61	41	32	29	16	28	17
	QLD	40	34	31	26	24	16	13	12	11	8
	NSW	78	68	73	56	48	52	39	34	33	27
	VIC	19	16	7	4	3	5	8	9	9	4
	SA	28	23	24	14	11	0	4	0	2	8
	TAS	37	10	29	30	19	14	0	7	35	20
NT											
Average		61	51	53	41	36	32	25	22	21	16
Total mining	WA		16	15	14	10	8	7	8	6	5
	QLD		28	25	22	21	16	12	12	10	8
	NSW		57	61	45	43	44	33	30	29	23
	VIC		22	13	12	15	13	11	9	9	6
	SA		19	17	7	10	6	4	4	7	9
	TAS		25	23	25	19	18	18	24	28	16
NT			14	11	9	8	7	7	9	9	8
Average			29	29	23	20	17	12	13	12	9
Extractive industries	WA		19	15	5	10	11	3	16	12	10
	QLD		24	20	11	10	14	15	12	8	11
	NSW		25	25	17	8	4	10	3	6	20
	VIC		24	18	16	21	17	18	19	15	14
	SA		33	38	27	11	20	20	18	15	21
	TAS		22	24	17	18	14	3	4	0	4
NT			37	29	12	3	12	17	12	0	16
Average			26	23	16	11	11	13	9	10	15
Smelting/refining	WA		8	8	8	7	6	4	3	4	3
	QLD		26	21	23	15	10	19	12	3	7
	NSW		21	14	14	9	8	16	9		12
	VIC		7	5	5	5	4	1	7		1
	SA		49	13	10	9	7	11	4	1	3
	TAS		39	29	31	19	8	9	9	18	17
NT			15	14	15	10	10	4	6	5	3
Average			17	13	13	10	7	8	5	6	6
All mining industry	WA	20	14	13	12	10	8	7	7	6	5
	QLD	31	27	25	22	20	15	12	12	10	8
	NSW	58	52	52	39	36	36	29	22	25	22
	VIC	51	17	10	10	12	11	10	11	8	6
	SA	24	37	17	12	10	9	8	6	4	9
	TAS	39	33	27	28	19	13	13	16	22	17
NT	22	14	12	11	8	8	7	9	8	7	
Average		33	27	25	21	18	15	12	11	11	9

Note: 'All Mining Industry' includes exploration

Duration and Severity Rates

By definition, the Duration Rate (DR) measures the average time lost for every lost time injury. The Severity Rate (SR) is defined as the average number of days lost per million hours worked.

The average DR for the minerals industry over 2001-2002 was 24 days lost per injury (an 18% increase on last period), suggesting an upward trend.

In 2000-2001, the SR was similar to previous years at 211 days lost per million hours worked.

Duration and Severity Rates by sector

COAL

In last year's report it was noted that the open-cut coal sector had reported its first improvement in the DR in six years. In 2001-02, unfortunately, this sector reported a substantial increase in the DR from 22 last period to 37 (67%). This rate of 37 was the worst result of any sector this period. A slight increase (4%) in the SR was also recorded for the open-cut coal sector this period.

The underground coal sector also recorded an increase in DR in 2001-02 moving up from 29 last period to 32 this period. This rate was the second highest DR of any sector in 2001-02. Traditionally the underground coal sector has recorded an SR between 4 and 10 times higher than any other sector. While a slight decrease in SR was recorded in 2001-02, the rate of 971 is still 3.5 times higher than the second highest rate which was recorded by the open-cut coal sector.

METALLIFEROUS

In 2001-02 the open-cut metalliferous sector's DR increased from 15 last period to 17 (16%). This rate of 17 is 59% higher than the sector's lowest recorded DR of 11 recorded in 1999-2000. The SR for open-cut metalliferous had remained relatively stable during the previous three years and remained stable once again this year, decreasing only very slightly from 97 last period to 92 this period. This is the lowest reported SR for any sector in 2001-02.

As with the open-cut sector, underground metalliferous also recorded a slight increase in DR, moving from 14 in 2000-01 to 16 in 2001-02. This was accompanied by a significant decrease in SR which fell from 173 to 144 (17%) this period. This rate is the lowest SR recorded for the underground metalliferous sector in five years.

EXTRACTIVES

After recording a significant rise in DR between 1999-2000 and 2000-01, the extractives industries sector was the only sector to record a decrease in DR in 2001-02 (from 18 last period) to 13. An increase in SR from 173 last period to 195 this period was also reported.

SMELTING/REFINING

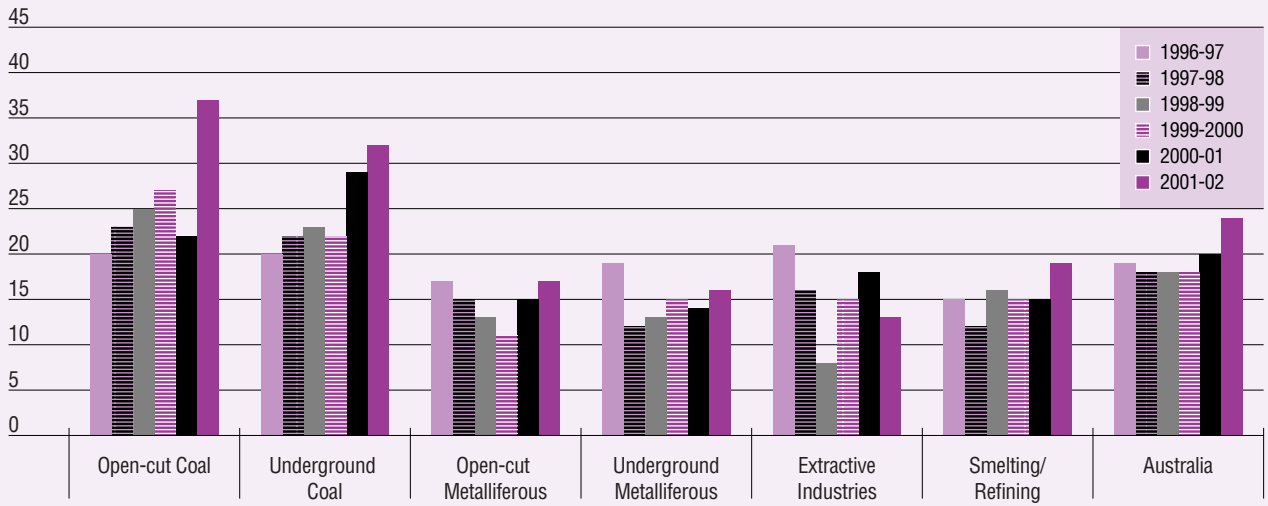
Smelting/refining, though recording relatively stable DRs between 1998-99 and 2000-01, reported a significant increase (23%) in 2001-02. This was accompanied by a similar increase (28%) in SR. Despite this increase in SR, the sector still reported the second lowest SR of any sector.

TABLE 5: Duration Rate and Severity Rate by sector 1997-98 to 2001-02

	1997-98		1998-99		1999-2000		2000-01		2001-02	
	Duration Rate	Severity Rate	Duration Rate	Severity Rate	Duration Rate	Severity Rate	Duration Rate	Severity Rate	Duration Rate	Severity Rate
Open-cut coal	23	344	25	355	27	314	22	271	37	283
Underground coal	22	1288	23	929	22	816	29	996	32	971
Open-cut metalliferous	15	133	13	93	11	92	15	97	17	92
Underground metalliferous	12	195	13	160	15	189	14	173	16	144
Extractive industries	16	174	8	113	15	134	18	176	13	195
Smelting/refining	12	82	16	135	15	83	15	86	19	110
Total mining	18	274	18	206	18	200	20	213	24	211

Note: 'Total Mining' includes exploration

CHART 14 Duration Rate by sector 1996-97 to 2001-02



Duration and Severity Rate by State/Territory

DR again varied markedly between States/Territories in this period. Rates ranged between ten in Victoria and 37 in New South Wales. Over this period, the Australian average DR was 24, increasing by 18% on last period's results. As with the previous four years, New South Wales recorded the highest Duration Rate of all States.

The SR for Australia as a whole has remained relatively stable again this year.

The DR for New South Wales in 2001-02 increased substantially (35%) from 27 last period to 37 this period. This is the highest DR recorded by any State and also continues a four-year increasing trend for New South Wales.

In 2001-02 New South Wales also reported the highest Severity Rate of 795 lost days per one million hours worked. This is a 17% increase on last year's result and is 160% higher than the SR recorded by the next highest State, Tasmania.

Western Australia reported a rise in DR of 10% between 2000-01 and this period. This rate is also the highest DR recorded by Western Australia in the past four years. Despite this, Western Australia reported a reduction in SR in 2001-02 which fell from 95 last period to 85 this period. This SR is the second lowest rate of any State.

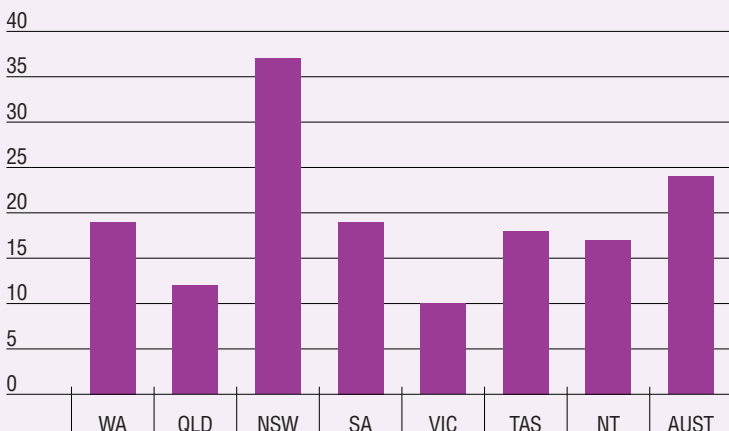
Queensland was one of just two States to report a reduction in DR. In 2001-02 its rate fell significantly (22%) down to 12. This reduction in DR was accompanied by a significant reduction in SR which fell from 152 last period to 101 this period.

South Australia recorded a slightly increased DR compared to last year – 19 days lost per lost time injury. South Australia also recorded a very large increase in its SR which rose 129% to 167 in 2001-02.

Victoria reported a substantial reduction (46%) in DR in 2001-02. It now has the lowest DR of any State/Territory (10), despite having reported the second highest DR in 2000-01. Victoria's SR also fell markedly from 161 to 59. This SR is the lowest of all States/Territories by 30%.

Tasmania's DR has increased to 18 this year, its highest rate in five years. This was accompanied by a decrease in SR from 352 last period to 306 this period.

CHART 15 Duration Rate by State 2001-02



The Northern Territory, after recording the lowest DR of any State in 2000-01 (eight), recorded a considerable increase of 108% between 2000-01 and 2001-02. A similar increase was seen in the SR which increased from 61 to 119.

Across Australia over the past few years there has generally been an increase in Duration and Severity Rates. This trend may be due to all or some of the following explanations:

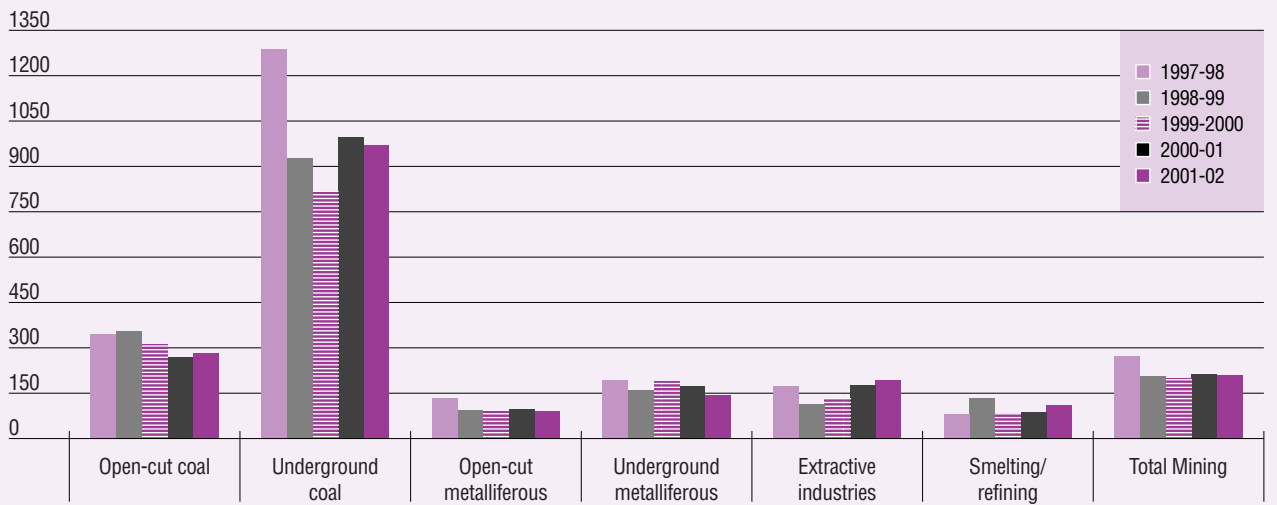
- injuries suffered by employees may have been more severe in recent years, requiring more recovery time;
- less severe injuries may be being managed better (eg they may not result in a lost time injury at all) thus increasing the DR and SR;

- some types of injuries require longer periods of time off the job, eg fractures; and/or
- injury management may have deteriorated, resulting in longer delays in returning employees to pre-injury duties.

TABLE 6: Duration Rate and Severity Rate by State 1998-99 to 2001-02

	1998-99		1999-2000		2000-01		2001-02	
	Duration Rate	Severity Rate	Duration Rate	Severity Rate	Duration Rate	Severity Rate	Duration Rate	Severity Rate
WA	15	102	12	85	17	95	19	85
QLD	13	168	15	178	16	152	12	101
NSW	24	691	25	567	27	678	37	795
SA	9	68	17	113	17	73	19	167
VIC	12	119	13	140	19	161	10	59
TAS	13	159	13	202	16	352	18	306
NT	7	50	11	96	8	61	17	119
Australia	18	206	18	200	20	213	24	211

CHART 16 Severity Rate By sector 1997-98 to 2001-02



Workers' Compensation Data

This section discusses National Occupational Health and Safety Commission (NOHSC) data for 2000-01, the latest such figures available.

Fatalities in the Mining Industry

Injury and fatality data recorded by NOHSC may differ from that recorded by the mines inspectorates for the same period. This difference may be explained by inconsistencies in data collection. For example, the NOHSC definition of what constitutes the minerals industry differs from the definition used by the mines inspectorates. For the purpose of comparisons, NOHSC disease data is excluded as disease figures are unlikely to be included in the mines inspectorate data.

In 2000-01, NOHSC recorded higher figures than those recorded by the mines inspectorates. This was not the case the previous year when the mines inspectorates recorded higher figures.

TABLE 7: Inspectorate/NOHSC data comparison

Year	Mines inspectorate recorded fatalities	NOHSC recorded fatalities
1998-99	10	17
1999-2000	19	13
2000-01	15	21

In 2000-01, 19 injury/poisoning deaths and two disease deaths were recorded by NOHSC for the mining industry. This compares with 11 injury/poisoning deaths and two disease-related deaths in 1999-2000. As in previous years, confidentiality concerns mean no further information is available on disease deaths.

TABLE 8: Fatality data – injury/poisoning and disease 2000-01

	Injury/Poisoning	Disease
Coal Mining	4	0
Metal Ore Mining	9	0
Other Mining	3	1
Services To Mining	2	0
Oil and Gas Extraction	1	1

Injury/poisoning fatalities in 2000-01 included nine deaths in the Metal Ore Mining sector (47%), four deaths in Coal Mining, three deaths in Other Mining, two deaths in Services to Mining and one death in Oil and Gas Extraction.

Fatal incidence and frequency rates are shown in Chart 17 for selected additional ANZSIC sub-divisions. Selected industry sub-divisions are those from the higher end of the spectrum traditionally used for comparison purposes.

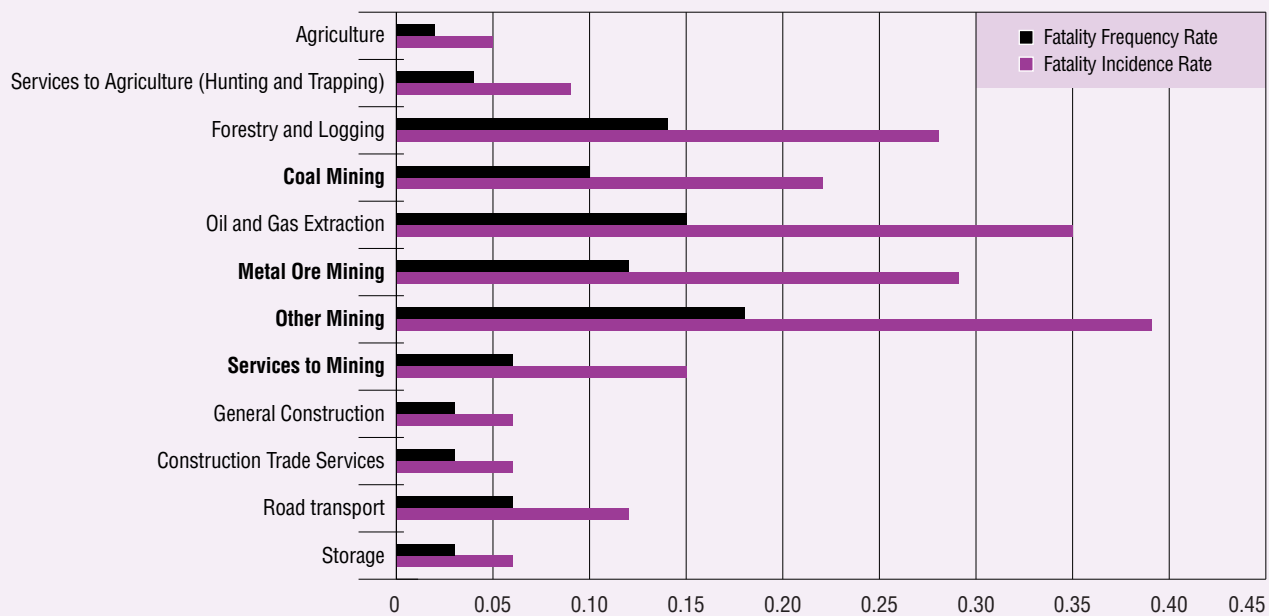
In 2000-01, the mining sectors performed poorly in general when compared to other industries on the FIFR indicator. All mining sectors, except Services to Mining, reported a rate of 0.10 or above. All other industries, except Forestry and Logging (0.14), reported frequency rates of 0.06 or below. These results are similar to those seen last year.

Within the mining sectors, Coal Mining recorded a reduction from 0.20 to 0.10, Metal Ore Mining reduced from 0.20 to 0.12 and Other Mining reduced from 0.30 to 0.18. Further comparisons are difficult as FIFRs have only been available rounded to the nearest tenth in previous years.

The mining sectors also performed poorly in general in 2000-01 compared to other industries on the FIIR indicator. All mining sectors reported a rate of 0.15 or above, whereas all other industries, except Forestry and Logging (0.28), reported incidence rates of 0.12 or below. Once again these results are similar to those seen last year.

Within the mining sectors, Coal Mining recorded an increase from 0.10 to 0.22, Metal Ore Mining increased from 0.10 to 0.29 and Other Mining increased from 0.20 to 0.39. Further comparisons are difficult as FIIRs have only been available rounded to the nearest tenth in previous years.

CHART 17 Fatal Frequency Rate and Fatal Incidence Rate for selected industries



Mining industry injury claims data

The following section discusses the nature of new workers' compensation claims, including fatal and non-fatal claims, in 2000-01.

In 2000-01, the mining industry in total recorded 2,630 new claims. As in previous years, the majority of these claims were recorded in the Coal Mining sector (978) and the Metal Ore Mining sector (762). The most number of claims recorded by any of the industries presented was 8,597, which was recorded by the Construction Trade Services industry.

The least number of claims was recorded by the Forestry and Logging industry (437). It should be noted that these figures make no allowance for the relative size of each industry.

The average number of weeks lost and the median number of weeks lost per new claim gives an indication of the severity of the claims occurring. As a whole, the mining industry recorded an average of 12 weeks lost per new claim. This compares reasonably well with other industries, most of which recorded between 11 and 13 weeks lost on average. Within the mining industry the average number of weeks lost varied widely between sectors. The Oil and Gas Extraction sector recorded 15 weeks lost on average, whereas the Coal Mining sector recorded around nine weeks lost on average.

The median number of weeks lost is sometimes a better measure of the 'typical' duration of a claim as this measure is less susceptible to outliers in the data ie several very long

or short duration claims. As with all the industries presented, the median number of weeks lost in 2000-01 for the mining sectors is well below the average number of weeks lost, suggesting that there are a number of very long duration claims 'dragging up' the average number of weeks lost.

The median number of weeks lost for the mining industry as a whole is four weeks. Again this compares reasonably well with other sectors. Within the mining industry, the median number of weeks lost varied widely, with around five weeks recorded for Services to Mining and three weeks recorded for Coal Mining.

For reasons given above, the median cost of new claims is sometimes a better indicator of the cost of a 'typical' claim rather than the average cost. Notably, even though Services to Mining recorded the highest median number of weeks lost, it recorded one of the lowest median costs per claims (\$5,693) of the minerals industry sectors. The Coal Mining sector recorded the lowest median number of weeks lost and also recorded the highest median cost of claims.

In general, the mining sectors and minerals industry as a whole performed poorly when compared to other industries, all of which recorded a lower median cost of claims.

The overall cost to the industry in 2000-01 was \$36,318,094 compared to \$31,041,791 in 1999-2000. This remains below the figure of \$40,416,958 recorded in 1996-97. However, these data are preliminary figures and will change over time.

TABLE 9: New Workers' Compensation Claims, injury/poisoning cases by ANZIC sub-division 2000-01 (includes fatal and non-fatal)

	Number of cases	Average weeks lost	Median weeks lost	Average cost*	Median cost*	Total weeks lost
Agriculture	4229	11.8	4.6	\$9,608	\$3,597	44,278
Services to Agriculture	680	12.0	3.6	\$12,093	\$3,412	7,962
Forestry and Logging	437	8.7	3.0	\$10,683	\$3,707	3,657
Coal Mining	978	9.4	3.0	\$13,220	\$6,672	7,755
Oil and Gas Extraction	68	15.0	4.0	\$27,374	\$6,112	974
Metal Ore Mining	762	10.6	3.6	\$14,561	\$6,022	8,751
Other Mining	399	11.3	4.0	\$13,643	\$5,577	4,590
Services to Mining	423	13.7	5.3	\$14,869	\$5,693	5,594
General Construction	5810	11.1	3.6	\$12,143	\$5,045	53,997
Construction Trade Services	8597	12.7	4.2	\$12,702	\$5,061	86,559
Road transport	5511	12.3	4.4	\$11,617	\$4,692	55,598
Storage	1268	8.8	3.0	\$8,887	\$3,079	9,886

* Costs and Weeks Lost data should be treated with caution as they are preliminary and may not represent the final average cost or the final number of weeks lost

Disease claims in the mining industry

Disease claims typically account for only a small proportion (5% to 10%) of workers' compensation claims in all industries.

In 2000-01, on average, disease accounted for about 17% of all claims in the mining industry. This figure varied widely between sectors with Coal Mining recording 22% of claims due to disease and Oil and Gas Extraction recording just 13% of claims due to disease.

Looking at the mining industry disease claims as a whole, 45% of disease claims were attributed to the Coal Mining sector, almost double that of the next highest sector, Metal Ore Mining, which accounted for 24% of all disease claims. The lowest proportion of disease claims was recorded by the Oil and Gas Extraction sector which reported just 2% of all disease claims.

THE NATURE OF CLAIMS

Similar to 1999-2000 each of the mining sectors reported at least 88% of total claims resulting from a combination of claims due to injury/poisoning and claims due to diseases of the nervous system and sense organs (eg noise-induced hearing loss), with the former being the major contributor.

Oil and Gas Extraction recorded the highest percentage of claims due to injury/poisoning (86.8%), and the second lowest percentage of claims due to diseases of the nervous system and sense organs (2.9%). In contrast, Coal Mining recorded the lowest rate of claims due to injury/poisoning (77.6%) and the highest percentage of claims due to diseases of the nervous system and sense organs (17.7%).

Diseases of the Musculoskeletal System and Connective Tissue were responsible for between 3.0% and 4.4% of claims in all sectors with the exception of Coal Mining which reported just 0.7% of claims in this category. Other notable results were 3.5% of claims attributable to Diseases of the Digestive System in the Services to Mining sector, and 2.9% of claims attributable to Mental Disorders in the Oil and Gas Extraction sector. All other claim types contributed small or negligible percentages.

TABLE 10: Mining industry proportion of injury/poisoning cases and disease cases (across sectors) 2000-01

	% Injury/Poisoning	% Disease
Coal Mining	35.3%	45.4%
Metal Ore Mining	30.1%	23.9%
Other Mining	15.0%	15.8%
Services To Mining	16.8%	13.1%
Oil and Gas Extraction	2.7%	1.9%
Total	100.0%	100.0%

TABLE 10a: Mining industry proportion of injury/poisoning cases and disease cases (within sectors) 2000-01

	% Injury/ Poisoning	% Disease	Total
Coal Mining	77.6%	22.4%	100.0%
Metal Ore Mining	84.9%	15.1%	100.0%
Other Mining	81.0%	19.0%	100.0%
Services To Mining	85.1%	14.9%	100.0%
Oil and Gas Extraction	86.8%	13.2%	100.0%

International Comparisons

Fatalities

South Africa

Raw data indicates that the South African mining industry suffered 200 fatalities in 2002, 18 less than the previous year and its best result to date. The number of fatalities has declined steadily over recent years, with this year's figure of 200 being well below the average annual number of fatalities for the decade of 323. By comparison, Australia experienced 7 fatalities this year, 11 less than its average annual number of fatalities for the decade of 18.

The Australian minerals industry average FIFR over the past ten years is 0.09. The South African equivalent for all mines is 0.36, four times that experienced in Australia. The most significant sector contributing to this high FIFR in South Africa is the gold mining sector. This sector has recorded a ten-year average FIFR of 0.46.

In a direct comparison of sectors, the South African total metalliferous sector experienced an FIFR of 0.41 in 2002 compared to the Australian sector's FIFR of 0.03. South Africa's total coal sector reported its second lowest rate in over ten years of 0.19, but still almost five times greater than that of the Australian total coal sector which reported a rate of 0.04.

Comparisons could not be made to open-cut or underground sectors because the available South African data do not differentiate between these sectors.

US

The United States mining industry reported 41 fatalities in the first nine months of 2002 and provisionally 67 fatalities for the calendar year (40 fatalities in the metal/non-metal sector and 27 in the coal sector). An all-mining FIFR of 0.12 was reported for the nine-month period, which is well below last year's recorded rate of 0.17.

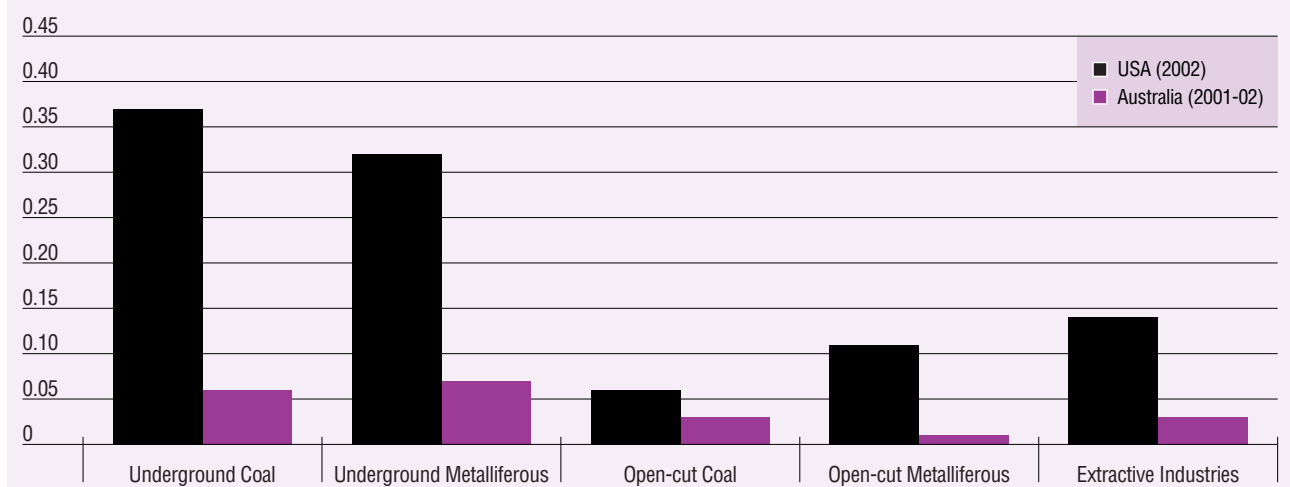
On a sector level, the US total metalliferous sector reported an FIFR of 0.11, almost four times the Australian metalliferous sector's result of 0.03. The US total coal sector reported an FIFR of 0.16, which is again substantially higher than the Australian equivalent rate of 0.04.

For every sector, with the exception of underground metalliferous, rates in the US were higher than rates in Australia. As in previous years, the poorest sector in the US this year was the underground coal sector, which reported an FIFR of 0.22. This rate is substantially above the Australian equivalent rates of 0.06.

Australia's metalliferous sector ten-year average FIFR was 0.09, somewhat less than the US rate of 0.12 for the same period. Australia's open-cut metalliferous sector reported a rate of 0.04 for the decade, compared to 0.14 in the US. The Australian underground metalliferous sector reported an FIFR 0.24 for the decade, compared to 0.34 in the US.

The US ten-year average FIFRs for open-cut and underground coal were 0.11 and 0.24 respectively. This compares with equivalent rates of 0.04 and 0.20 respectively in Australia.

CHART 18 International mining industry fatality rates 2001-02



Canada

Ontario experienced five fatalities (provisionally) in the calendar year 2002. (Ontario does not have coal mines.)

In 2002, Ontario had an FIFR of 0.21 across its metalliferous sector, up from 0.08 last year. Underground metalliferous mines reported an FIFR of 0.18, whilst open-cut mines reported a FIFR of 0.74. By comparison, Australia's underground and open-cut metalliferous sectors reported rates of 0.07 and 0.01 respectively.

While Ontario has experienced a relatively stable LTIFR in recent years, the FIFR has been more variable. This can be partly explained by the comparatively small size of the industry in Ontario.

CHART 19 International metalliferous mining industry fatality rates 2001-02

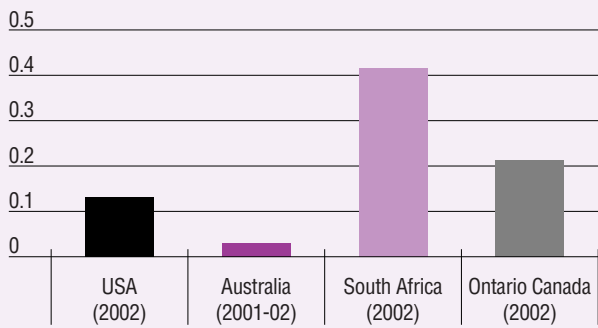


CHART 20 International coal mining industry fatality rates 2001-02

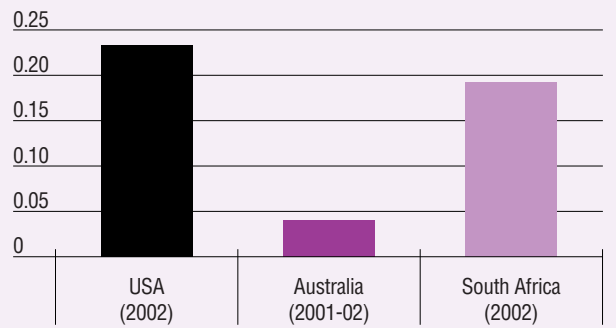
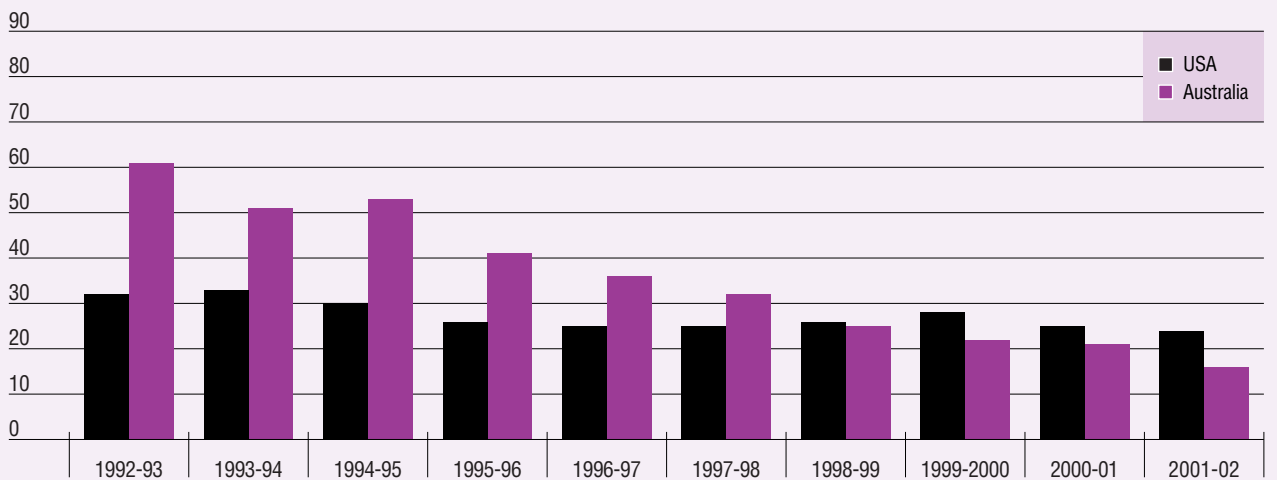


CHART 21 International coal mining lost time injury rates 1992-93 to 2001-02



Lost Time Injury comparisons

Coal

The US Non-Fatal Days Lost Frequency Rate (NFDL/FR) for coal was 25 per million hours worked. This remains below the sector's ten-year average of 28. By comparison, the Australian coal sector recorded its lowest rate in a decade of 16, less than half the ten-year average of 36.

In South Africa, injuries are only reported if more than 14 days are lost. The figures are therefore not directly comparable with Australian data. However, it is worth noting that the South African LTIFR has fluctuated since 1989 and has shown no sustained improvement during that time.

Metalliferous

The US's NFDL/FR for the metalliferous sector has remained stable during the last decade, varying between a rate of 17 and 13. The sector recorded a NFDL/FR of 13 in 2002. Australian data has shown a consistently decreasing trend, from 22 in 1992-93 to a decade low of six in 2001-02.

In South Africa, differences (see above) and reliability in data collection make it difficult to make useful comparisons. However, the LTIFR for the metalliferous sector in South Africa has improved slightly over the past decade.

In Ontario, LTIFR in the metalliferous sector over the past four years has remained steady, with rates of six, seven, six and six in 1999, 2000, 2001 and 2002 respectively. Over the same period, Australia's LTIFR has varied between nine and six.

CHART 22 International coal mining lost time injury rates 1992-93 to 2001-02

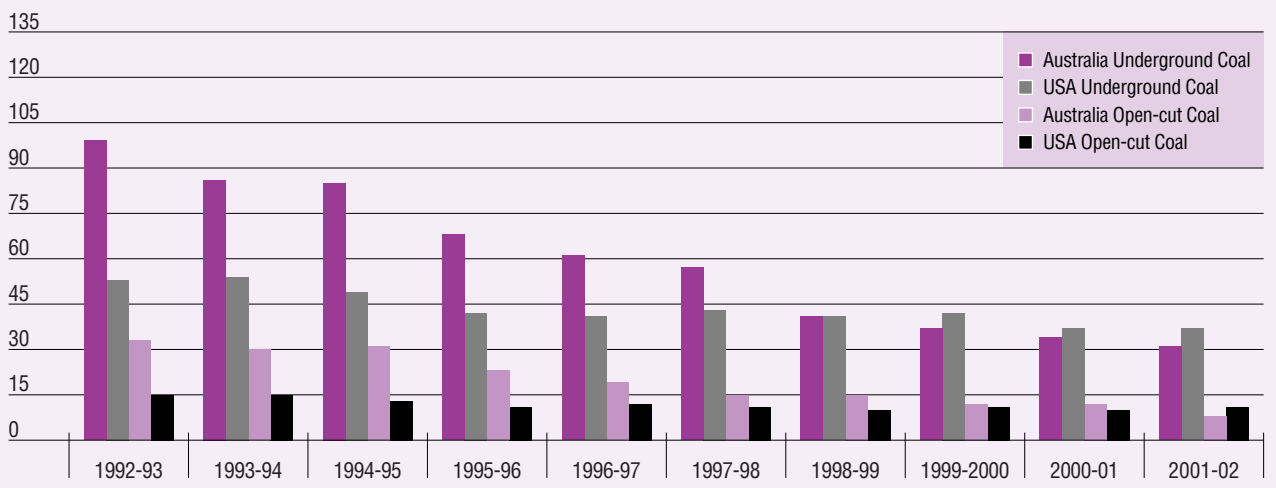


CHART 23 International metalliferous mining Lost Time Injury Rates 1992-93 to 2001-02

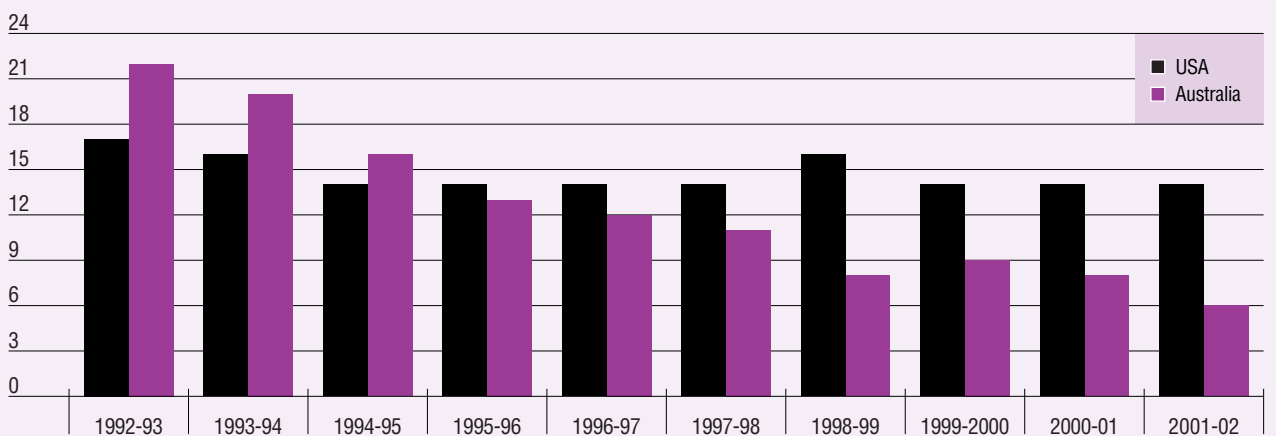
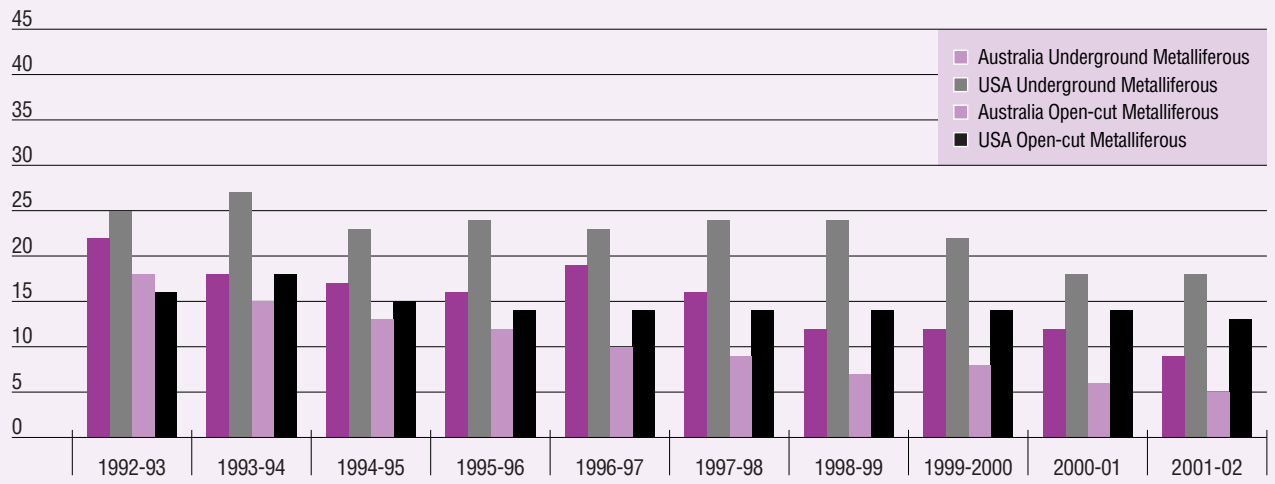


CHART 24 International metalliferous mining Lost Time Injury Rates 1992-93 to 2001-02



Conclusion

The number of fatalities in the Australian minerals industry has varied widely from year to year, though in 2001-02 fatalities decreased for the second consecutive year. Despite this, there is little evidence of a sustained improvement trend over the decade. This emphasises the need for minerals companies and governments to maintain an ongoing focus on fatality prevention.

A decrease in the number of LTIs was reported again in 2001-02. Similarly, the Lost Time Injury Frequency Rate decreased again this year. At a company level this highlights the need for a continued and increasing focus on other positive lead indicators to continue to drive performance improvement.

In addition, the steady reduction in lost time injuries and associated frequency rate provides a set of consistently low numbers which is not a statistically satisfactory measurement of the industry safety and health performance. Consequently the industry recognises the importance of expanding safety performance indicators and adopting industry-wide reporting of all injuries beyond first-aid treatment. It is expected that this broader measure will be more useful in understanding the full extent of injuries and helping to improve performance.

Minerals companies are now reporting on two measures: the number of Medical Treatment Cases (or Medical Treatment Injuries) and the number of Total Recordable Injuries.

In pursuit of the Council's safety and health vision of an Australian minerals industry free of fatalities, injuries and diseases, it is important to separate out and report on these different types of injuries and show a progression, by company and industry reporting, towards an injury-free industry.

In recent years there has generally been an increase in Duration Rates and Severity Rates. In 2001-02 most sectors recorded significant increases in DR. Results for the SR were less consistent with both increases and decreases being reported. Companies need to ensure through effective risk management that an adequate focus is given to the potential for high-severity permanently disabling injuries.

To the extent that valid international comparisons can be made, the Australian minerals industry appears to be performing well on these benchmarks.

The overall cost to the industry in 2000-01 was \$36,318,094. Although this dollar cost to the industry is significant, the tragic cost in terms of human life and pain and suffering is immeasurable.

Reference Tables

TABLE 11: Nature of disease claims in the mining sectors (across sectors) 2000-01

	Percentage				
	Coal Mining	Metal Ore Mining	Other Mining	Services to Mining	Oil and Gas Extraction
Injury and Poisoning	77.6%	84.9%	81.0%	85.1%	86.8%
Diseases of the Nervous System & Sense Organs	17.7%	5.9%	9.5%	2.6%	2.9%
Diseases of the Musculoskeletal System & Connective Tissue	0.7%	3.7%	3.0%	4.0%	4.4%
Diseases of the Skin & Subcutaneous Tissue	0.7%	0.7%	0.3%	0.7%	0.0%
Diseases of the Digestive System	1.7%	1.6%	1.8%	3.5%	1.5%
Infectious and Parasitic Diseases	0.1%	0.5%	0.0%	0.9%	0.0%
Diseases of the Respiratory System	0.1%	0.7%	1.3%	0.0%	0.0%
Diseases of the Circulatory System	0.0%	0.3%	0.5%	0.9%	1.5%
Neoplasms (Cancers & Benign Tumors)	0.0%	0.1%	0.8%	0.2%	0.0%
Mental Disorders	1.1%	1.7%	2.0%	1.7%	2.9%
Other Diseases	0.2%	0.0%	0.0%	0.2%	0.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

TABLE 12: Nature of disease claims in the mining sectors (within sectors) 2000-01

	Percentage					
	Coal Mining	Metal Ore Mining	Other Mining	Services to Mining	Oil and Gas Extraction	Total
Injury and Poisoning	35.3%	30.1%	15.0%	16.8%	2.7%	100.0%
Diseases of the Nervous System & Sense Organs	64.3%	16.7%	14.1%	4.1%	0.7%	100.0%
Diseases of the Musculoskeletal System & Connective Tissue	10.4%	41.8%	17.9%	25.4%	4.5%	100.0%
Diseases of the Skin & Subcutaneous Tissue	43.8%	31.3%	6.3%	18.8%	0.0%	100.0%
Diseases of the Digestive System	32.7%	23.1%	13.5%	28.8%	1.9%	100.0%
Infectious and Parasitic Diseases	11.1%	44.4%	0.0%	44.4%	0.0%	100.0%
Diseases of the Respiratory System	9.1%	45.5%	45.5%	0.0%	0.0%	100.0%
Diseases of the Circulatory System	0.0%	22.2%	22.2%	44.4%	11.1%	100.0%
Neoplasms (Cancers & Benign Tumors)	0.0%	20.0%	60.0%	20.0%	0.0%	100.0%
Mental Disorders	26.8%	31.7%	19.5%	17.1%	4.9%	100.0%
Other Diseases	66.7%	0.0%	0.0%	33.3%	0.0%	100.0%

TABLE 13: Number of fatalities by State 1992-93 to 2001-02

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02
WA	6	7	9	4	8	13	3	6	5	3
QLD	2	4	17	1	12	1	2	2	2	2
NSW	10	5	4	2	11	4	4	11	4	2
VIC	0	2	0	0	0	0	0	0	1	0
TAS	0	1	1	0	1	0	1	0	3	0
SA	1	1	0	0	0	1	0	0	0	0
NT	0	0	1	0	1	0	0	0	0	0
Australia	19	20	32	7	33	19	10	19	15	7

TABLE 14: Number of fatal injuries By Sector 2001-02

	WA	QLD	NSW	VIC	SA	TAS	NT	AUSTRALIA
O/C coal	0	1	0	0	0	0		1
U/G coal		0	1			0		1
Total coal	0	1	1	0	0	0		2
O/C metalliferous	1	0	0	0	0	0	0	1
U/G metalliferous	1	1	0	0	0	0	0	2
Total metalliferous	2	1	0	0	0	0	0	3
Extractive Industries	1	0	0	0	0	0	0	1
Smelting/Refining	0	0	1	0	0	0	0	1
Exploration	0						0	0
ALL	3	2	2	0	0	0	0	7

TABLE 15: Fatal Injury Frequency Rates by State 1992-93 to 2001-02

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	Average
WA	0.09	0.09	0.12	0.05	0.09	0.14	0.03	0.07	0.06	0.03	0.08
QLD	0.05	0.05	0.32	0.02	0.24	0.02	0.04	0.04	0.04	0.04	0.09
NSW	0.24	0.10	0.10	0.05	0.25	0.11	0.11	0.31	0.13	0.06	0.15
VIC	0.00	0.26	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.00	0.04
TAS	0.00	0.11	0.11	0.00	0.12	0.00	0.11	0.00	0.36	0.00	0.08
SA	0.33	0.11	0.00	0.00	0.00	0.19	0.00	0.00	0.00	0.00	0.06
NT	0.00	0.00	0.12	0.00	0.09	0.00	0.00	0.00	0.00	0.00	0.02
ALL	0.12	0.09	0.15	0.03	0.15	0.09	0.05	0.09	0.08	0.03	0.09

TABLE 16: Australian minerals industry Fatal Injury Frequency Rate 1992-93 to 2001-02

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02	Average
Open-cut coal	0.07	0.07	0.03	0.06	0.03	0.03	0.04	0.04	0.00	0.03	0.04
Underground coal	0.13	0.10	0.58	0.05	0.41	0.05	0.11	0.22	0.29	0.06	0.20
Open-cut metalliferous	0.06	0.05	0.12	0.00	0.07	0.02	0.02	0.03	0.05	0.01	0.04
Underground metalliferous	0.30	0.15	0.23	0.10	0.46	0.39	0.14	0.37	0.15	0.07	0.24
Extractive Industries		0.46	0.20	0.00	0.00	0.09	0.00	0.13	0.17	0.09	0.13
Smelting/Refining		0.04	0.02	0.02	0.05	0.00	0.00	0.00	0.00	0.02	0.02
Total Industry*	0.12	0.09	0.15	0.03	0.15	0.09	0.05	0.09	0.08	0.03	0.09

* Includes exploration

TABLE 17: Fatal Injury Frequency Rate by State and sector 2001-02

	WA	QLD	NSW	SA	VIC	TAS	NT	AUST
Open-cut coal	0.00	0.05	0.00	0.00	0.00	0.00		0.03
Underground coal		0.00	0.09			0.00		0.06
Total coal	0.00	0.04	0.05	0.00	0.00	0.00		0.04
Open-cut metalliferous	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.01
Underground metalliferous	0.11	0.14	0.00	0.00	0.00	0.00	0.00	0.07
Total metalliferous	0.03	0.05	0.00	0.00	0.00	0.00	0.00	0.03
Extractive Industries	0.63	0.00	0.00	0.00	0.00	0.00	0.00	0.09
Smelting/Refining	0.00	0.00	0.25	0.00	0.00	0.00	0.00	0.02
Total Industry	0.03	0.04	0.06	0.00	0.00	0.00	0.00	0.03

TABLE 18: Number of Lost Time Injuries by State 1992-93 to 2001-02

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02
WA	1,337	1,033	1,025	1,031	863	726	652	583	492	392
QLD	1,186	1,174	1,088	1,014	983	761	676	568	466	461
NSW	2,357	2,016	2,098	1,679	1,576	1,383	1,018	795	788	699
VIC	171	129	85	79	82	95	83	85	68	55
TAS	133	293	236	261	158	121	111	137	183	132
SA	73	340	142	93	72	43	76	50	35	62
NT	151	143	106	105	91	78	60	76	61	58
Australia	5,408	5,128	4,780	4,262	3,825	3,207	2,676	2,294	2,093	1,859

TABLE 19: Lost Time Injury Frequency Rates by sector 1992-93 to 2001-02

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02
O/C coal	33	30	31	23	19	15	15	12	12	8
U/G coal	99	86	85	68	61	57	41	37	34	31
O/C metalliferous	18	15	13	12	10	9	7	8	6	5
U/G metalliferous	22	18	17	16	19	16	12	12	12	9
Extractive Industries		26	23	16	11	11	13	9	10	15
Smelting/Refining		17	13	13	10	7	8	5	6	6
All mining	33	27	25	21	18	15	12	11	11	9

TABLE 20: Lost Time Injury Frequency Rate by State 1992-93 to 2001-02

	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-01	2001-02
WA	20	14	13	12	10	8	7	7	6	5
QLD	31	27	25	22	20	15	12	12	10	8
NSW	58	42	52	39	36	36	29	23	25	22
TAS	51	33	27	28	19	13	13	16	22	17
VIC	24	17	10	10	12	11	10	11	8	6
SA	39	37	17	12	10	7	8	6	4	9
NT	22	14	13	11	8	8	7	9	8	7
Australia	33	27	25	21	18	15	12	11	11	9

TABLE 21: Severity Rate by sector 2001-02

	WA	QLD	NSW	SA	VIC	TAS	NT	AUST
Open-cut coal	102	77	852	177	32	241		283
Underground coal		283	1371			91		971
Total coal	102	126	1139	177	32	120		519
Open-cut metalliferous	85	80	5	517	165	490	80	92
Underground metalliferous	128	140	55	17	94	355	140	144
Total metalliferous	91	101	40	219	106	377	101	106
Extractive Industries	257	179	112	330	159	9	510	110
Smelting/Refining	36	7	639	29	12	274	16	211
Total Industry*	85	101	795	167	59	306	119	211

* Includes exploration

TABLE 22: Employment and hours worked by State and sector 2001-02

State	Sector	No. of employees	No. of hours worked incl O/T
WA	Metalliferous surface	27,743	57,260,000
	Metalliferous underground	3,601	9,070,000
	Metalliferous total	31,344	66,330,000
	Coal surface	662	1,150,000
	Brown coal surface		
	Total coal surface	662	1,150,000
	Coal underground		
	Coal total	662	1,150,000
	Mining total	32,006	67,480,000
	Extractive industries	806	1,590,000
	Smelting/refining	8,157	15,730,000
	Exploration	647	1,220,000
	ALL MINING	41,616	86,020,000
	QLD	Metalliferous surface	5,451
Metalliferous underground		2,418	6,928,300
Metalliferous total		7,869	20,242,900
Coal surface		7,496	19,760,400
Brown coal surface			
Total coal surface		7,496	19,760,400
Coal underground		2,551	6,160,800
Coal total		10,047	25,921,200
Mining total		17,916	46,164,100
Extractive industries		854	2,220,800
Smelting/refining		983	8,364,163
Exploration			
ALL MINING		19,753	56,749,063
NSW		Metalliferous surface	766
	Metalliferous underground	1,790	3,927,260
	Metalliferous total	2,556	5,607,864
	Coal surface	4,374	8,805,136
	Brown coal surface		
	Total coal surface	4,374	8,805,136
	Coal underground	5,652	10,870,666
	Coal total	10,026	19,675,802
	Mining total	12,582	25,283,666
	Extractive industries	1,561	2,786,853
	Smelting/refining	2,031	4,075,875
	Exploration		
	ALL MINING	16,174	32,146,394
	SA	Metalliferous surface	526
Metalliferous underground		651	1,650,385
Metalliferous total		1,177	2,770,142
Coal surface		212	378,095
Brown coal surface			
Total coal surface		212	378,095
Coal underground			
Coal total		212	378,095
Mining total		1,389	3,148,237
Extractive industries		564	1,293,241
Smelting/refining		1,044	2,606,596
Exploration			
ALL MINING		2,997	7,048,074

TABLE 22: **Employment and hours worked by State and sector 2001-02** (continued)

State	Sector	No. of employees	No. of hours worked incl O/T
VIC	Metalliferous surface	418	133,366
	Metalliferous underground	436	690,047
	Metalliferous total	854	823,413
	Coal surface	178	226,309
	Brown coal surface	1,140	2,561,003
	Total coal surface	1,318	2,787,312
	Coal underground		
	Coal total	1,318	2,787,312
	Mining total	2,172	3,610,725
	Extractive industries	1,634	2,188,330
	Smelting/refining	1,774	3,653,122
	Exploration	375	77,819
	ALL MINING	5,955	9,529,996
	TAS	Metalliferous surface	247
Metalliferous underground		1,185	2,730,050
Metalliferous total		1,432	3,252,555
Coal surface		15	29,091
Brown coal surface			
Total coal surface		15	29,091
Coal underground		70	120,725
Coal total		85	149,816
Mining total		1,517	3,402,371
Extractive industries		112	231,253
Smelting/refining		2,147	4,297,369
Exploration			
ALL MINING		3,776	7,930,993
NT		Metalliferous surface	1,232
	Metalliferous underground	971	2,289,903
	Metalliferous total	2,203	4,827,914
	Coal surface		
	Brown coal surface		
	Total coal surface		
	Coal underground		
	Coal total		
	Mining total	2,203	4,827,914
	Extractive industries	188	368,816
	Smelting/refining	1,079	2,732,345
	Exploration	99	184,347
	ALL MINING	3,569	8,113,422
	NATIONAL	Metalliferous surface	36,383
Metalliferous underground		11,052	27,285,945
Metalliferous total		47,435	103,854,788
Coal surface		12,937	30,349,031
Brown coal surface		1,140	2,561,003
Total coal surface		14,077	32,910,034
Coal underground		8,273	17,152,191
Coal total		22,350	50,062,225
Mining total		69,785	153,917,013
Extractive industries		5,719	10,679,293
Smelting/refining		17,215	41,459,469
Exploration		1,121	1,482,166
ALL MINING		93,840	207,537,941

TABLE 23: South African Fatality and Injury Rates† for all mines 1989-2002

Gold Mines	Labour	Hours	Fatalities	Injuries	FIR	LTIIR	FIFR	SIFR
1989	520,023	1,144,050,600	549	8,561	1.06	16.5	0.48	7.5
1990	484,738	1,066,423,600	526	8,195	1.09	16.9	0.49	7.7
1991	426,830	939,026,000	461	7,571	1.08	17.7	0.49	8.1
1992	362,196	796,831,200	407	7,585	1.12	20.9	0.51	9.5
1993	343,147	754,923,400	398	7,230	1.16	21.1	0.53	9.6
1994	346,648	762,625,600	350	6,743	1.01	19.5	0.46	8.8
1995	333,257	733,165,400	401	6,100	1.20	18.3	0.55	8.3
1996	317,363	698,198,600	308	5,822	0.97	18.3	0.44	8.3
1997	293,995	646,789,000	265	5,579	0.90	19.0	0.41	8.6
1998	223,498	491,695,600	239	4,543	1.07	20.3	0.49	9.2
1999	211,156	464,542,714	207	4,202	0.98	19.9	0.45	9.0
2000	190,645	419,419,355	175	3,546	0.98	19.9	0.45	9.0
2001	183,254	403,159,206	192	3,370	0.92	18.6	0.42	8.5
2002	179,472	394,838,713	174	3,286	0.92	18.6	0.42	8.5
Average							0.48	
Other Mines								
1989	117,716	258,975,200	132	1,175	1.12	10.0	0.51	4.5
1990	127,128	279,681,600	99	1,259	0.78	9.9	0.35	4.5
1991	169,927	373,839,400	101	1,171	0.59	6.9	0.27	3.1
1992	111,944	246,276,800	99	857	0.88	7.7	0.40	3.5
1993	100,530	221,166,000	58	1,212	0.58	12.1	0.26	5.5
1994	101,693	223,724,600	46	1,148	0.45	11.3	0.21	5.1
1995	100,598	221,315,600	46	943	0.46	9.4	0.21	4.3
1996	111,335	244,937,000	52	932	0.47	8.4	0.21	3.8
1997	111,755	245,861,000	59	783	0.53	7.0	0.24	3.2
1998	111,254	244,758,800	45	815	0.40	7.3	0.18	3.3
1999	19,332	42,529,833	8	81	0.41	4.2	0.19	1.9
2000	18,105	39,831,579	8	86	0.41	4.2	0.19	1.9
2001	18,765	41,283,537	9	77	0.44	4.8	0.20	2.2
2002	21,969	48,331,085	7	92	0.44	4.8	0.20	2.2
Average							0.28	
Total Metalliferous								
1989	637,739	1,403,025,800	681	9,736	1.07	15.3	0.49	6.9
1990	611,866	1,346,105,200	625	9,454	1.02	15.5	0.46	7.0
1991	596,757	1,312,865,400	562	8,742	0.94	14.6	0.43	6.7
1992	474,140	1,043,108,000	506	8,442	1.07	17.8	0.49	8.1
1993	443,677	976,089,400	456	8,442	1.03	19.0	0.47	8.6
1994	448,341	986,350,200	396	7,891	0.88	17.6	0.40	8.0
1995	433,855	954,481,000	447	7,043	1.03	16.2	0.47	7.4
1996	428,698	943,135,600	360	6,754	0.84	15.8	0.38	7.2
1997	405,750	892,650,000	324	6,362	0.80	15.7	0.36	7.1
1998	334,752	736,454,400	284	5,358	0.85	16.0	0.39	7.3
1999	230,488	507,072,547	215	4,283	0.93	18.6	0.42	8.4
2000	208,750	459,250,934	183	3,632	0.88	17.4	0.40	7.9
2001	202,019	444,442,743	201	3,447	0.99	17.1	0.45	7.8
2002	201,441	443,169,798	181	3,378	0.90	16.8	0.41	7.6
Average							0.44	

† South African frequency rates are calculated based upon 2200 hours worked per employee per year

TABLE 23: South African Fatality and Injury Rates† for all mines 1989-2002 (continued)

Coal Mines	Labour	Hours	Fatalities	Injuries	FIR	LTIR	FIFR	SIFR
1989	103,065	226,743,000	54	361	0.52	3.5	0.24	1.6
1990	103,304	227,268,800	50	404	0.48	3.9	0.22	1.8
1991	82,790	182,138,000	42	361	0.51	4.4	0.23	2.0
1992	69,489	152,875,800	46	359	0.66	5.2	0.30	2.3
1993	40,599	89,317,800	25	191	0.62	4.7	0.28	2.1
1994	54,251	119,352,200	44	202	0.81	3.7	0.37	1.7
1995	55,667	122,467,400	25	212	0.45	3.8	0.20	1.7
1996	56,770	124,894,000	30	256	0.53	4.5	0.24	2.0
1997	58,246	128,141,200	33	213	0.57	3.7	0.26	1.7
1998	55,218	121,479,600	35	218	0.63	3.9	0.29	1.8
1999	54,762	120,476,190	28	207	0.51	3.8	0.23	1.7
2000	57,568	126,648,649	30	213	0.52	3.7	0.24	1.7
2001	49,783	109,521,739	17	171	0.34	3.4	0.16	1.6
2002	46,148	101,524,743	19	159	0.41	3.4	0.19	1.6
Average							0.24	
All Mines*								
1989	740,804	1,629,768,800	675	9,858	0.91	13.3	0.41	6.0
1990	715,170	1,573,374,000	604	9,103	0.84	12.7	0.38	5.8
1991	679,547	1,495,003,400	552	8,801	0.81	13.0	0.37	5.9
1992	543,629	1,195,983,800	481	8,633	0.88	15.9	0.40	7.2
1993	484,276	1,065,407,200	440	8,093	0.91	16.7	0.41	7.6
1994	502,592	1,105,702,400	472	7,255	0.94	14.4	0.43	6.6
1995	489,522	1,076,948,400	390	7,010	0.80	14.3	0.36	6.5
1996	485,468	1,068,029,600	357	6,575	0.74	13.5	0.33	6.2
1997	463,996	1,020,791,200	319	5,576	0.69	12.0	0.31	5.5
1998	389,970	857,934,000	243	4,490	0.62	11.5	0.28	5.2
1999	408,942	899,672,131	309	5,488	0.76	13.4	0.34	6.1
2000	396,644	872,617,450	285	4,728	0.72	11.9	0.33	5.4
2001	251,802	553,964,482	218	3,618	0.87	14.4	0.39	6.5
2002	247,588	544,694,541	200	3,537	0.81	14.3	0.37	6.5
Average							0.37	
All Other Metalliferous								
2002	130,628	287,382,259	84	843	0.64	6.5	0.29	2.9

† South African frequency rates are calculated based upon 2200 hours worked per employee per year

* This data does not include mines that are in the Independent States

* Includes mines besides those listed above

TABLE 24: US Injury and fatality data 1993-2002

Sector	Year	Fatals	NFDL	Hours	FIFR	NFDL/FR
Open-cut Minerals	1993	10	1,929	117,043,787	0.09	16
	1994	22	3,224	183,033,715	0.12	18
	1995	27	1,934	131,751,905	0.20	15
	1996	18	1,842	130,660,530	0.14	14
	1997	26	1,907	131,909,654	0.20	14
	1998	18	1,779	128,869,555	0.14	14
	1999	19	1,768	129,909,709	0.15	14
	2000	29	2,844	195,245,813	0.15	15
	2001	11	1,932	142,000,712	0.08	14
	2002	20	2,512	190,026,864	0.11	13
	Average 1993-2002				0.14	15
Underground Minerals	1993	18	665	27,052,879	0.67	25
	1994	9	753	27,743,947	0.32	27
	1995	7	676	29,148,687	0.24	23
	1996	7	720	30,422,891	0.23	24
	1997	10	698	29,967,186	0.33	23
	1998	7	661	28,079,505	0.25	24
	1999	13	642	26,382,396	0.49	24
	2000	9	604	26,089,189	0.34	23
	2001	8	345	19,407,762	0.41	18
	2002	8	451	24,829,531	0.32	18
	Average 1993-2002				0.36	23
Total Minerals	1993	38	5,524	330,287,519	0.12	17
	1994	35	5,545	340,084,916	0.10	16
	1995	43	5,113	353,688,787	0.12	14
	1996	36	5,047	358,323,521	0.10	14
	1997	44	5,255	363,107,344	0.12	14
	1998	39	4,852	354,793,004	0.11	14
	1999	40	4,977	312,702,223	0.13	16
	2000	38	3,448	221,335,002	0.17	16
	2001	19	2,277	161,408,474	0.12	14
	2002	28	2,963	214,856,395	0.13	14
	Average 1993-2002				0.12	15
Sand & Gravel*	1993	13	1,087	55,890,610	0.23	19
	1994	5	1,178	58,447,335	0.09	20
	1995	8	1,043	59,068,034	0.14	18
	1996	10	966	68,375,116	0.15	14
	1997	17	1,012	62,095,958	0.27	16
	1998	12	1,080	64,520,916	0.19	17
	1999	15	1,217	68,723,367	0.22	18
	2000	11	1,006	78,095,566	0.14	13
	2001	11	1,025	57,245,962	0.19	18
	2002	11	901	79,034,470	0.14	11
	Average 1993-2002				0.17	16
Open-cut Coal	1993	12	1,289	87,478,629	0.14	15
	1994	17	1,299	89,351,326	0.19	15
	1995	16	1,031	81,825,127	0.20	13
	1996	5	866	79,883,063	0.06	11
	1997	6	971	82,302,239	0.07	12
	1998	4	859	80,276,812	0.05	11
	1999	9	786	76,346,498	0.12	10
	2000	10	801	71,886,169	0.14	11
	2001	2	590	57,728,518	0.03	10
	2002	5	840	79,511,427	0.06	11
	Average 1993-2002				0.11	12

TABLE 24: US Injury and fatality data 1993-2002 (continued)

Sector	Year	Fatals	NFDL	Hours	FIFR	NFDL/FR
Underground Coal	1993	26	5,932	111,758,604	0.23	53
	1994	24	6,224	114,741,933	0.21	54
	1995	26	5,449	110,124,939	0.24	49
	1996	32	4,522	106,712,083	0.30	42
	1997	22	4,376	105,752,094	0.21	41
	1998	22	4,303	100,653,162	0.22	43
	1999	20	3,765	92,283,677	0.22	41
	2000	20	3,592	86,160,480	0.23	42
	2001	28	2,478	67,491,058	0.41	37
	2002	34	3,347	91,459,962	0.37	37
	Average 1993-2002				0.26	45
Total Coal	1993	47	7,901	243,534,975	0.19	32
	1994	44	8,225	253,005,354	0.17	33
	1995	38	7,044	235,164,382	0.16	30
	1996	38	5,858	228,061,776	0.17	26
	1997	30	5,805	228,579,672	0.13	25
	1998	29	5,608	221,017,170	0.13	25
	1999	35	4,983	195,265,625	0.18	26
	2000	30	4,393	158,046,649	0.19	28
	2001	30	3,068	125,219,576	0.24	25
	2002	39	4,187	170,971,389	0.23	24
	Average 1993-2002				0.17	28

* Includes office workers but excludes contactors (less than 2% of workers in this category)

TABLE 25: Ontario, Canada fatality and injury rates for all mines 2000-2002

Sector	Year	Hours	Labour	Lost Time Injuries	Fatalities	LTIFR	FIFR
Open-cut Minerals	1999	2479875	1413	19	0	8	0.00
	2000	1721229	848	14	0	8	0.00
	2001	1866919	869	8	1	4	0.54
	2002	1350629	633	10	1	7	0.74
	Average						
Underground Minerals	1999	19862460	12112	121	2	6	0.10
	2000	22710747	11850	158	5	7	0.22
	2001	22550343	11674	149	1	7	0.04
	2002	22433640	11369	140	4	6	0.18
	Average						
Total Metalliferous	1999	22342335	13525	140	2	6	0.09
	2000	24431976	12698	172	5	7	0.20
	2001	24417262	12543	157	2	6	0.08
	2002	23784269	12002	150	5	6	0.21
	Average						

Notes: Data does not include contract drillers or miners
Open-cut Minerals does not include sand and gravel

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