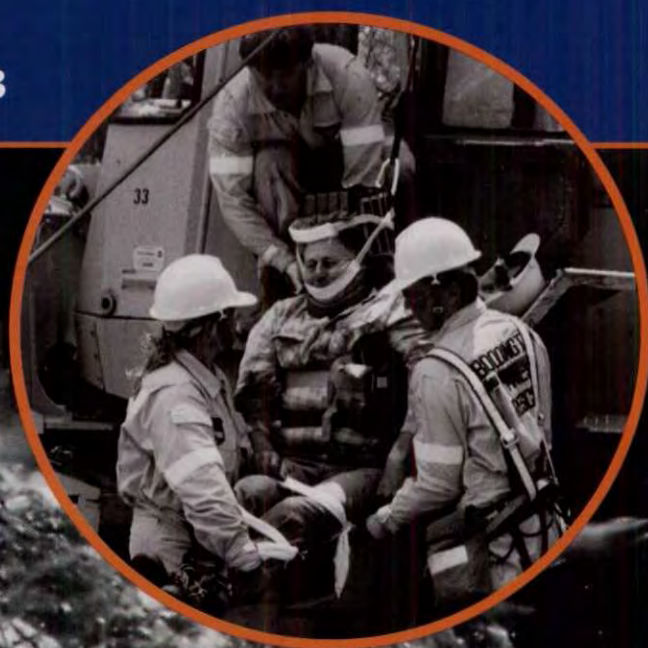


Safety Performance

In the Western Australian Mineral Industry

ACCIDENT AND INJURY STATISTICS 2002/2003





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SUMMARY

Statistics from the Department of Industry and Resources AXTAT database for the year 2002/03 show continuing improvement in the overall safety performance of the Western Australian mining industry.

Over the ten year period from 1993/94 to 2002/03 the lost time injury frequency rate, (LTIFR), lost time injuries per million hours worked, has fallen from 13.9 to 4.4. The number of accidents reported for these years were 1,033 and 378 respectively. The LTIFR for 2002/03 of 4.4 represents a marginal improvement over the 2001/02 figure of 4.5. The number of lost time injuries reported in 2002/03 was 378, two less than for 2001/02. The LTIFR figures recorded since 1998/99, with the exception of 1999/00 when the rate increased, display a steadily decreasing annual difference. Successive LTIFRs from 1998/99 to the present are 6.6, 6.9, 5.6, 4.5, 4.5, and 4.4, a trend which appears to be approaching a plateau.

The number of serious injuries recorded since 1998/99 has remained substantially constant from one year to another and whilst some variability is evident in the serious injury frequency rates, due primarily to fluctuations in the reported numbers of people employed, the proportion of serious injuries embedded in the lost time injury (LTI) figures is increasing. Moreover the actual number of LTIs reported as serious injuries is increasing.

The injury duration rate (average work days lost per injury) has risen for the second successive year. Considered in conjunction with the issues raised above this is a cause for concern. For many years the focus has been on LTIs and on means whereby they can be 'managed' more effectively, both in terms of the individual employee's welfare and the related issue of Workers' Compensation. Much has been achieved in this regard and it is to industry's credit that considerable progress has been made in the areas of early return of employees to full function, on-the-job post accident rehabilitation and retraining of personnel. The available statistics point to a very effective regime of dealing with minor potential lost time injuries, but unfortunately, a means whereby the question of a rising frequency of 'serious' injuries might be addressed remains unresolved. Current accident statistics indicate that this problem may be becoming more pressing and specific action is required to deal with it.

Since the beginning of fiscal 2001/02 the Department of Industry and Resources (DoIR) has been collecting so-called 'disabling' injury statistics. This program was initiated with a view to establishing a more effective safety performance indicator than the current LTI based system. The relatively small number of LTIs currently being reported is providing less guidance than formerly on industry safety performance. Allegations that lost time injuries are "managed" to provide favourable accident reporting data have been made by various parties in recent times. 'Disabling' injuries are, generally,

not amenable to the 'mechanism' alluded to above. The intention is that, with time, a useful measure of safety performance will emerge from this initiative.

The 43,285 employees in the mining industry (a rise of 6 percent) worked a total of 85.99 million hours.

Five mining employees lost their lives during the year, two more than for the previous year. The accidents occurred across several commodity groups with two attributed to gold mining, one to base metals, one to nickel and one to diamonds. The causes of particular accidents are arguably of more significance than the commodity mined. Two people died in rockfall related accidents, and three in mechanical failure related incidents. It is appropriate to mention that the number of rockfall injuries reported in 2002/03 has risen with respect to previous years.

The Department of Industry and Resources, through the Safety Health and Environment Division (SHED) continues to regulate the Mining Industry by Statutory Inspections, Safety Management System and High Impact Function audits. The Department continued to play an important role in providing education, training support and information to industry. During the year, safety meetings, presentations to minesite employees, and briefings to industry safety and health representatives complemented the inspection activities.

The Department is also participating and assisting in the development of the National Mine Safety Framework, an initiative of the Ministerial Council on Mineral and Petroleum Resources. Some of the benefits expected to accrue from this are enhanced confidence within industry in addressing statutory requirements and cost effectiveness in implementing them.

The Department has developed and implemented a Resource Management Index system which is intended to more appropriately focus departmental resources on areas meriting greatest attention in terms of safety and health. An important aspect of the system is that industry initiatives in relevant areas are recognised.

STATISTICAL SUMMARY



- There were five fatal accidents during 2002/03; one occurred underground in a base metals mine and four occurred on the surface; two at gold mines, one at a nickel mine and one at a diamond mine.
- There were 378 lost time injuries during 2002/03, almost the same as the previous year (380 injuries in 2001/02). The breakdown of the number of injuries by commodity mined is illustrated graphically in Appendix A.
- There was an average workforce of 43,285 employees in 2002/03, an increase of 6 percent over the previous year (40,969 employees in 2001/02). The breakdown of the number employees by commodity mined is illustrated graphically in Appendix A.
- The overall lost time injury duration rate deteriorated by 4 percent during 2002/03, rising from 18.8 to 19.6. The breakdown of the average workdays lost for each commodity mined is illustrated graphically in Appendix A.
- The overall lost time injury frequency rate improved slightly by 2 percent during 2002/03, falling from 4.5 to 4.4.
- The overall injury index deteriorated slightly by 2 percent during 2002/03, up from 84 to 86.
- Serious injuries in the mining industry during 2002/03 totalled 271, which is 17 more than for 2001/02.
- The overall serious injury frequency rate deteriorated by 7 percent during 2002/03, rising from 3.0 to 3.2.
- The bauxite and alumina sector lost time injury frequency rate deteriorated by 8 percent during 2002/03, rising from 2.5 to 2.7.
- The gold sector lost time injury frequency rate improved by 14 percent during 2002/03, falling from 5.8 to 5.0.
- The iron ore sector lost time injury frequency rate deteriorated by 4 percent during 2002/03, rising from 2.3 to 2.4. This is the lowest frequency rate of all the major commodity groups.
- The nickel sector lost time injury frequency rate deteriorated significantly by 60 percent during 2002/03, rising from 3.0 to 4.8.



EXPLANATORY NOTES

INTRODUCTION

The statistics published in this report relate to accidents that occurred between 1 July 2002 and 30 June 2003 (2002/03) involving time lost from work of one day or more (lost time injuries) on mines in Western Australia. The day on which the accident occurred is not counted as a day lost. The total number of working days lost through injury in 2002/03 has three components :

- i) Initial Injuries - days lost in 2002/03 from injuries that occurred in 2002/03.
- ii) Recurrent Injuries - days lost in 2002/03 through recurrences of injuries that occurred in 2002/03 and previous years.
- iii) Carry Over Injuries - days lost in 2002/03 by persons continuously off work from injuries which occurred before 1 July 2002.

Note: Appendix K contains statistics on disabling injuries.

SCOPE

Injuries to all company and contractor employees who worked at 'mining operations' are included in these statistics. The definition of 'mining operation' is stated in Section 4 of the Mines Safety and Inspection Act 1994 and includes mining company treatment plants, port facilities and railways. Exploration activities, although now included in the definition of mining operations, have not been included. In addition, the oil and gas industry injuries are not included in the statistics of this report.

METALLIFEROUS MINES

All mines other than coal mines are classed as metalliferous mines.

FATAL ACCIDENTS

Work days lost have not been allocated to this type of accident, nor have fatalities been included in injury incidence, frequency or duration rate calculations except in the tables on page 14 which are in accordance with Australian Standard 1885.1-1990 "Workplace Injury and Disease Recording Standard". This Standard treats fatalities as lost time injuries with a penalty of 220 workdays lost for each.

COLLECTION OF INFORMATION

Each month accident/injury details are reported to the Department of Industry and Resources by mine managers, as are the number of persons employed (including contractor employees) and the hours worked during the month.

During the twelve months, on average, 182 mines or groups of mines reported to the AXTAT system.

JOURNEY ACCIDENTS

Injuries which occurred in journey accidents (travelling to or from work) have not been included in calculations of incidence, frequency or duration rates.

DEFINITIONS

Lost Time Injury – a work injury that results in an absence from work of at least one full day or shift any time after the day or shift on which the injury occurred.

Serious Injury – a lost time injury that results in the injured person being disabled for a period of two weeks or more.

Incidence Rate – the number of injuries per 1,000 employees for a 12 month period.

Frequency Rate – the number of injuries per million hours worked.

Duration Rate – the average number of workdays lost per injury.

Injury Index – the number of workdays lost per million hours worked (frequency rate x duration rate).

Fatal Incidence Rate – the number of fatalities per 1,000 employees for a 12 month period.

Fatal Frequency Rate – the number of fatalities per million hours worked.

Serious Incidence Rate – the number of serious injuries per 1,000 employees for a 12 month period.

Serious Frequency Rate – the number of serious injuries per million hours worked.

ABBREVIATIONS



BRUISE/CONT	- bruise/contusion
C/BY MACH	- caught by or between operating machine
C/BY BETWEEN	- caught by or between moving and/or stationary objects
CONST. MAT	- construction materials
C/W ELECTRICITY	- contact with electric current
C/W CHEM	- contact with chemicals or fumes
C/W H/P FLUID	- contact with high pressure fluid
C/W OBJECT	- contact with object
C/W TOOL	- contact with tool
DI	- disabling injury
EFF CHEM	- effects of chemicals or fumes
EXPL DETON	- explosives detonation
LTI	- lost time injury
MOTOR COLLISION	- motor vehicle collision
MOTOR VEH ROLL	- motor vehicle roll over
M VEH/EQUIP	- motor vehicle/equipment
NLT	- no lost time
NOC	- not otherwise classified
OVER/STREN MOV	- over exertion or strenuous movements
POWER GEN	- power generation
R/FALL U/G	- rock fall underground
S/AGAINST OBJECT	- struck against object
S/BY OBJECT	- struck by object
S/BY VEH/MOBILE	- struck by vehicle or mobile plant
SURF	- surface
TIN TANT. LITHIUM	- tin, tantalum and lithium
U/G	- underground
U/G ACCESS/HAUL	- underground access, travelling and haulage ways
U/G DUMPING	- underground dumping
U/G PROD/DEV	- underground production and development areas
VEH/EQUIP JOLT	- vehicle/equipment jolting



FATAL ACCIDENTS

REVIEW OF FATAL ACCIDENTS DURING 2002/03

Five fatal accidents occurred in the Western Australian mineral industry during the 2002/03 fiscal year; one occurred underground in a base metals mine and four occurred on the surface; two at gold mines, one at a nickel mine and one at a diamond mine.

- A diesel fitter, on top of the engine compartment of a load haul dump unit (LHD) which had stopped in an underground decline, was peering into the compartment when the LHD rolled approximately 44 metres down the decline before it struck the decline wall and stopped. A witness to the accident found the diesel fitter on top of the LHD with severe head injuries.
- A pit technician, engaged in "ore spotting" (determining the position of the ore-waste contact) for an excavator in a pit, was buried by rock debris when the pit wall immediately above her failed and rilled across the berm on which she was standing.
- A caretaker at a minesite on care and maintenance was found dead adjacent to the workshop. It is believed that he was inflating a tyre on a wheel which was lying flat on the ground when the tyre bead failed and the tube ruptured catastrophically. The force of the rupture caused the wheel assembly to be propelled into the air striking him in the face and chest area.
- A haul truck operator was driving his truck up the main pit ramp when a significant section of the ramp collapsed causing his truck to fall over the ramp edge. The truck rolled some 60 vertical metres down the slope and came to rest completely submerged in a sump at the bottom of the pit.
- A haul truck operator suffered fatal crush injuries when the cab of the truck he was driving was crushed by the rear of the tray of another truck which was rolling backwards down a pit ramp. The runaway truck had broken down on the ramp and the operator had left the cab to direct traffic around his truck. In the process of restarting the truck it rolled backwards down the ramp, apparently through the brakes which had been previously set.

FATAL INCIDENCE RATE BY MINERAL MINED 1998/99 - 2002/03

Figure 1 is a chart of fatal incidence by mineral mined (excluding exploration) for the last five years. The grouped information for all surface and underground mines is given at the top of the chart.

Figure 1

Fatal Incidence by Mineral Mined 1998/99 - 2002/03



Figure 1 shows that the underground fatal incidence rate of 0.49 is much higher than the surface operations fatal incidence rate of 0.07. This is reflected in the gold (fatal incidence rate 0.17), nickel (fatal incidence rate 0.19) and base metal sectors (fatal incidence rate 0.17) where the majority of the State's underground mining occurs. The high fatal incidence rate of 4.40 for the dimension stone sector was the result of two fatal accidents in a relatively small work-force, one fatal accident occurred during 2000/01 the other occurred during 2001/02.

FATAL INCIDENCE RATE 1993/94 - 2002/03

The fatal incidence rate for 2002/03, as indicated in Figure 2, was 0.12 (0.07 in 2001/02) and is still a concern to the Department. While the overall trend continues to decline, there is a year-by-year scatter of incidence rate which is typical for fatalities because of the low number of occurrences.

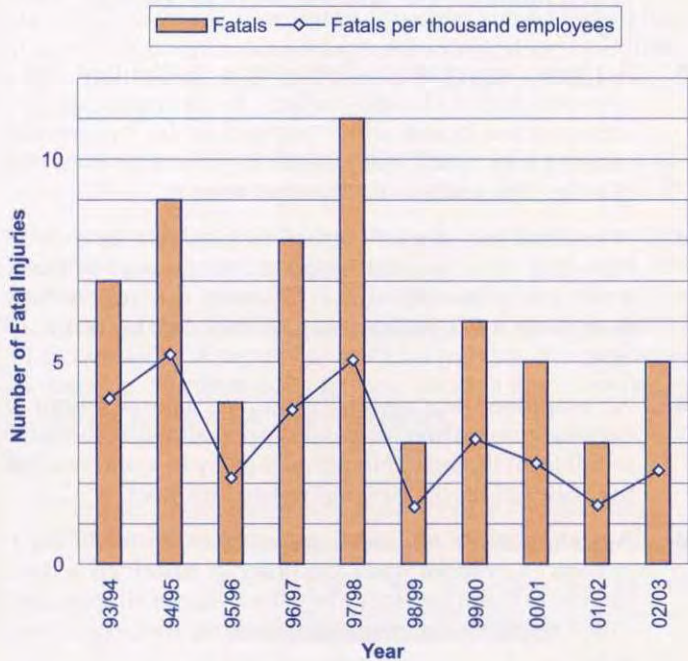
The Department maintains the view that no fatal accident is acceptable and a fatal incidence rate of zero is achievable and sustainable.

FATAL ACCIDENTS



Figure 2

Fatal Incidence Rate 1993/94 - 2002/03



FATAL ACCIDENTS BY TYPE 1998/99 - 2002/03

Figures 3 and 4 show the type of accidents (excluding exploration) for the 22 fatalities that occurred in the mining industry over the last five years. Of these fatalities, 9 occurred underground and 13 were in surface operations.

The most common types of underground fatal accidents were caught by or between objects (3 fatalities) and rockfalls (2 fatalities). Emphasis should continue to be placed on all aspects of ground control in underground mines, including training, excavation design and support, lighting, mechanisation of scaling operations and overhead protection for operators.

The most common type of surface fatal accident was vehicle roll over which resulted in 5 fatalities.

Figure 3

Underground Fatalities 1998/99 - 2002/03

TYPE OF ACCIDENT

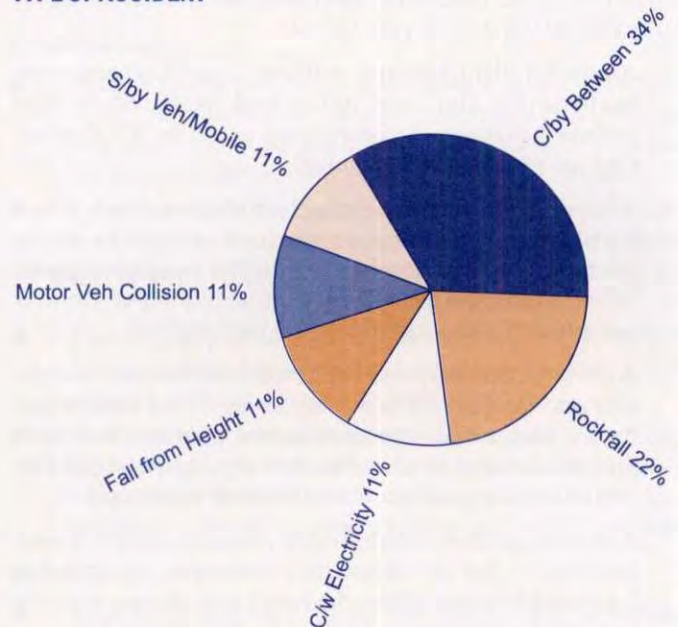
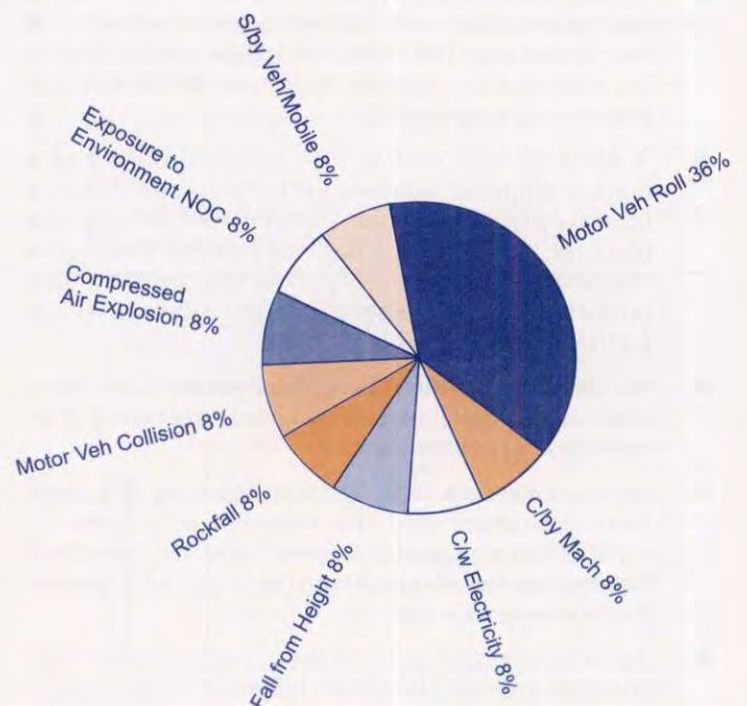


Figure 4

Surface Fatalities 1998/99 - 2002/03

TYPE OF ACCIDENT





SERIOUS INJURIES

REVIEW OF SERIOUS INJURIES DURING 2002/03

There were of 271 serious injuries in the mineral industry during the 2002/03 fiscal year (254 in 2001/02). Of these injuries, 264 occurred in metalliferous mines and 7 were in coal mines. Descriptions of some selected serious incidents that occurred during the year follow:

- A process plant operator suffered superficial and deep burns to his abdomen, groin and thighs when high pressure processed condensate at 70 to 80 degrees Celsius squirted from a valve.
- An industrial painter received an electric shock when he placed his hand on an electrical enclosure whilst attempting to access a bracket that he wanted to paint. When examined by nursing staff cardiac dysrhythmias were noted requiring him to be hospitalised.
- A construction carpenter suffered a fracture to his right arm and lacerations to the right side of his head when he fell from a wall into an adjacent concrete structure. He lost his balance when he attempted to move a ladder whilst standing on top of the 500mm wide wall.
- A process worker, attempting to remove a piece of rock jammed in the tail drum of a conveyor, sustained a fractured forearm when his hand was drawn into the operating conveyor as he tried to flick the rock out.
- A drill jumbo operator was loading a friction stabilizer onto a boom of his machine when a piece of rock detached from an unmeshed area of the backs striking the jumbo boom. The rock shattered and pieces struck the operator causing lacerations to his right arm and left hand.
- A fitter fractured his right tibia when he fell from a stair-type mobile work platform when it toppled over in a workshop. The stabilizers located at the front of the work platform had not been lowered into position before work commenced.
- A blockage occurred in the stemming bucket of a purpose equipped front end loader being operated on a blast pattern. Whilst the assistant tried to clear the blockage using a survey peg, the operator observed a downline falling into the blast hole and closed the gate on the bucket. The assistant suffered crush injuries and partial amputation to his left hand.
- An electrical technician received severe flash burns when an electrical ionisation explosion occurred at an underground crusher station.
- An employee, assisting in the dismantling of a large heat exchanger and the removal of pipework, experienced a twinge in his lower back. He completed that shift but found himself unable to get out of bed on the following morning.
- A process operator was feeling for a wear groove on an operating conveyor belt when his glove became caught in the belt. His arm was dragged between the belt and an idler as far as his shoulder. He was unable to reach the lanyard switch but did manage to isolate the belt to stop it running. He suffered soft tissue damage to his right arm.
- A rigger, engaged in dismantling scaffolding, was removing floorboards when he stepped on an unsupported board which rotated under his weight causing him to fall approximately three metres to the ground. He sustained a fractured femur.
- A construction worker, screeding concrete on a raise bore pad underground, stepped into an area of deep concrete allowing some to enter the top of his gumboots. He sustained serious chemical burns to his legs.
- An employee was removing an oversize rock from a conveyor belt when his hand slipped allowing the rock to fall from the belt. He jumped away to avoid having the rock fall on his feet and twisted his back.
- A contract plumber, assisting two other people lifting a hot water cylinder from the ground, sustained a torn tendon in his upper arm when the cylinder slipped and rolled onto his right arm as he was rising from a squatting position.
- A production supervisor severed a tendon in his thumb when he stabbed himself with a Stanley knife while cutting rubber.
- A boilermaker sustained a fractured pelvic bone when he was struck by a 2 metre long section of angle iron which had fallen 7 metres. The angle iron was being lowered when it slipped through the securing rope.
- An employee, checking a pit dewatering pump that had stopped discharging, received multiple burns when he disconnected the discharge line and was engulfed in super heated water and steam.
- A process plant operator, cleaning a rotary valve, had three fingers amputated when he accidentally placed them into the rotary feed.
- A maintenance planner, inspecting a SAG mill feed chute, stepped sideways to look at the back of the chute and fell over a hose, fracturing his upper left arm.
- A process plant operator, changing a dust injection spool piece, strained his lower back while working in an awkward position.
- An electrician, assisting an airleg miner by carrying explosives up a ladder rise, received multiple injuries when a piece of rock struck him on the chest causing him to fall 14 metres.

SERIOUS INJURIES



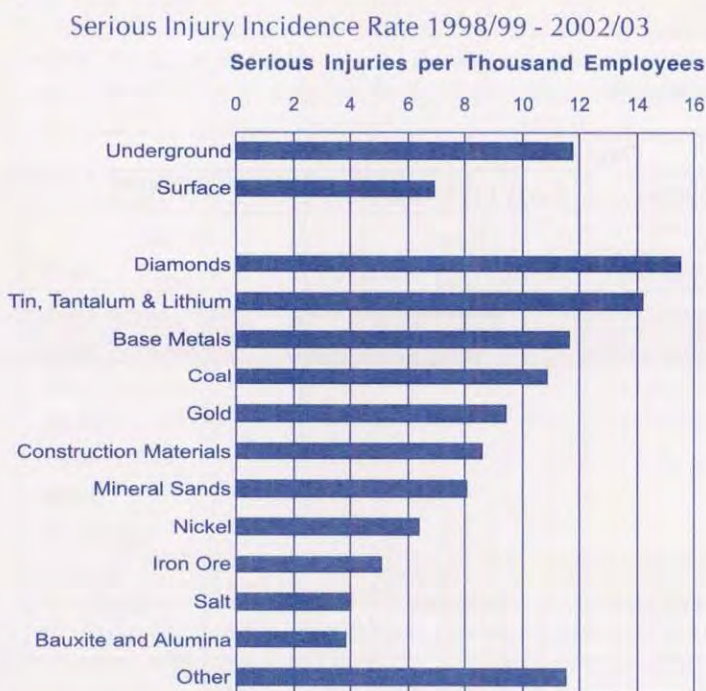
SERIOUS INJURY INCIDENCE RATE BY MINERAL MINED 1998/99 - 2002/03

Figure 5 is a chart of incidence rates for serious injuries for the past five years. The top of the chart shows the serious injury incidence rates for surface and underground operations while the lower part of the chart shows serious injury incidence rates by mineral mined.

The chart shows that underground mining had a much greater serious injury incidence rate (11.8) than surface mining (6.9).

Of the major mining sectors diamonds had the highest five-year average serious incidence rate (15.5) while bauxite and alumina had the lowest (3.8). The mining sector referred to as 'other', with a five year average serious incidence rate of 11.6, contained 4 percent of the total number of employees spread over 15 commodity groups. Most of the minesites in this sector had less than 50 employees.

Figure 5



SERIOUS INJURY FREQUENCY RATE 1998/99 - 2002/03

Figure 6 shows that the serious injury frequency rate increased, for underground and surface metalliferous operations and the coal sector, resulting in a 7 percent deterioration overall during 2002/03.

Figure 6

Serious Injury Frequency Rate 1998/99 - 2002/03

	98/99	99/00	00/01	01/02	02/03
Metalliferous U/G	4.3	3.9	3.9	4.3	4.5
Metalliferous Surface	2.6	2.6	3.0	2.8	2.9
Coal	7.9	2.3	5.6	4.3	6.4
Total	2.9	2.8	3.1	3.0	3.2

SERIOUS INJURY PERCENTAGE BREAKDOWN FOR 2002/03

Appendices B and C provide a percentage breakdown of the number of serious injuries by part of body, nature of injury, location of accident, and type of accident for underground and surface operations, respectively.

UNDERGROUND

- Injuries to legs and hands each accounted for 22 percent of serious injuries, back injuries accounted for 20 percent and arm injuries accounted for 13 percent. Of serious leg injuries, 80 percent were to knees and ankles.
- Consistent with the high proportion of knee, ankle, and back injuries, strain represented the highest proportion by nature of injury (29 percent), followed by fracture at 13 percent then laceration at 11 percent.
- The majority of serious injuries underground were in production and development areas (64 percent), and in access and haulage ways (22 percent).
- The most common accident types associated with serious injuries underground were rockfall (20 percent), followed by over exertion and strenuous movements (18 percent), and caught by or between moving objects (11 percent).

SURFACE

- Injuries to legs accounted for 24 percent of serious injuries, back injuries accounted for 22 percent followed by injuries to hands at 19 percent. Of serious leg injuries, 73 percent were to knees and ankles.
- Consistent with the high proportion of knee, ankle and back injuries, strain represented the highest proportion by nature of injury (37 percent). Fracture was the next highest (23 percent) followed by bruise/contusion, crushing, and sprain each at 7 percent.
- The majority of serious injuries on the surface occurred in treatment plants (46 percent), open pits (21 percent) and workshops (12 percent).
- The most common accident types associated with serious injuries in surface operations were over exertion and strenuous movements (28 percent), struck by object (11 percent) followed by slip/trip, and caught by or between moving objects (8 percent each).





LOST TIME INJURIES

REVIEW OF LOST TIME INJURIES DURING 2002/03

In 2002/03, 18,891 days were lost through occupational injuries on mines in Western Australia. This figure is made up of the number of days lost from injuries occurring in 2002/03 (7,417), the number of days lost from recurrences of injuries which occurred before 2002/03 and in 2002/03 (1,604) and from lost time injuries and recurrences which carried over into 2002/03 from accidents which occurred prior to July 2002 (9,870). A breakdown of work days lost in coal and metalliferous mining is given in Table 1.

During the 2002/03 fiscal year there were 378 lost time injuries in the State's mining industry, 362 in metalliferous mines and 16 in coal mines. A breakdown of this data together with performance indicators is given in Tables 2 and 3.

In addition to the initial injuries there were 44 recurrences of previous injuries resulting in 1,604 work days lost during 2002/03. A breakdown of recurrent injuries by year of initial injury is given in Table 4.

Ninety six persons who were still off work from injuries received before July 2002 lost 9,870 work days in 2002/03. A breakdown of these carry over injuries is given in Table 5.

Table 1 Time Lost Through Injury during 2002/03

	Days Lost			
	Initial Injuries	Recurrent Injuries	Carry Over Injuries	TOTAL
Metalliferous Mining	7,310	1,350	9,481	18,141
Coal Mining	107	254	389	750
TOTAL MINING	7,417	1,604	9,870	18,891

Table 2 Initial Lost Time Injuries during 2002/03

Mines	No. of Employees	No. of LTIs	Incidence	Frequency	Duration	Injury Index	Days Lost
Metalliferous Surface	38,516	305	7.9	4.1	21.0	86	6,419
Metalliferous U/Ground	4,129	57	13.8	5.7	15.6	89	891
Metalliferous Total	42,645	362	8.5	4.3	20.2	86	7,310
Coal Total	640	16	25.0	14.7	6.7	98	107
TOTAL MINING	43,285	378	8.7	4.4	19.6	86	7,417

LOST TIME INJURIES



Table 3 Injuries by Mineral Mined during 2002/03

Mineral Mined	No. of Employees	No. of LTIs	Incidence	Frequency	Duration	Injury Index	Days Lost
Gold	12,702	132	10.4	5.0	21.0	104	2,769
Iron Ore	10,635	46	4.3	2.4	17.7	43	812
Bauxite & Alumina	6,627	34	5.1	2.7	14.9	40	506
Nickel	5,343	57	10.7	4.8	20.7	99	1,180
Mineral Sands	2,050	16	7.8	3.9	16.9	66	270
Base Metals	1,148	24	20.9	8.4	13.1	110	314
Diamonds	1,095	20	18.3	8.3	23.9	198	478
Salt	659	4	6.1	3.6	30.5	110	122
Coal	640	16	25.0	14.7	6.7	98	107
Tin, Tantalum & Lithium	456	8	17.5	6.8	49.1	333	393
Construction Materials	305	3	9.8	5.3	41.7	219	125
Other	1,625	18	11.1	6.7	18.9	127	341
TOTAL MINING	43,285	378	8.7	4.4	19.6	86	7,417

NOTE: Duration in Tables 2 and 3 does not take into consideration time lost after 30 June 2003 by persons still off work at the end of the fiscal year, time lost from recurrent injuries or time lost by persons with carry over injuries from before July 2002.

Table 4 Recurrent Injuries during 2002/03

Year	Metalliferous Mining		Coal Mining	
	Number of Injuries	Number of Days Lost	Number of Injuries	Number of Days Lost
2003	4	43	—	—
2002	22	820	—	—
2001	5	226	1	6
2000	—	—	—	—
1999	1	40	—	—
1998	3	15	2	154
Pre 1998	3	206	3	94
TOTAL	38	1,350	6	254

NOTE: Apart from the information shown in Tables 1, 4 and 5 analysis of recurrent and carry over injuries has not been presented in this publication.

Table 5 Carry Over Injuries during 2002/03

Year	Metalliferous Mining		Coal Mining	
	Number of Injuries	Number of Days Lost	Number of Injuries	Number of Days Lost
2002	49	4,060	2	281
2001	29	3,640	—	—
2000	9	1,075	1	108
1999	2	395	—	—
1998	1	44	—	—
Pre 1998	3	267	—	—
TOTAL	93	9,481	3	389



LOST TIME INJURIES

REVIEW OF LOST TIME INJURIES DURING 2002/03 IN ACCORDANCE WITH AUSTRALIAN STANDARD AS 1885.1 - 1990

In June 1990 Standards Australia and Worksafe Australia released a joint Standard for recording workplace injuries and diseases. This standard, AS 1885.1 - 1990 "Workplace Injury and Disease Recording Standard", is designed to be used by individual workplaces. There are two major differences between AXTAT and this Standard. The Standard treats fatalities as lost time injuries with a penalty of 220 workdays lost for each, whereas AXTAT keeps them separate with no penalty. Also, AXTAT calculates incidence per thousand employees, in contrast to the Standard's definition of injuries per hundred employees.

Tables 6 and 7 provide statistical information in accordance with this standard.

Table 6 Initial Lost Time Injuries During 2002/03 (AS1885.1-1990)

Mines	No. of Employees	No. of LTIs	Injuries per Hundred	Frequency	Duration	Days Lost
Metalliferous Surface	38,516	309	0.8	4.1	23.6	7,299
Metalliferous U/Ground	4,129	58	1.4	5.8	19.2	1,111
Metalliferous Total	42,645	367	0.9	4.3	22.9	8,410
Coal Total	640	16	2.5	14.7	6.7	107
TOTAL MINING	43,285	383	0.9	4.5	22.2	8,517

NOTE : Duration in Tables 6 and 7 does not take into consideration time lost after 30 June 2003 by persons still off work at the end of the fiscal year, time lost from recurrent injuries or time lost by persons with carry over injuries from before July 2002.

Table 7 Injuries by Mineral Mined during 2002/03 (AS1885.1-1990)

Mineral Mined	No. of Employees	No. of LTIs	Injuries per Hundred	Frequency	Duration	Days Lost
Gold	12,702	134	1.1	5.0	23.9	3,209
Iron Ore	10,635	46	0.4	2.4	17.7	812
Bauxite & Alumina	6,627	34	0.5	2.7	14.9	506
Nickel	5,343	58	1.1	4.9	24.1	1,400
Mineral Sands	2,050	16	0.8	3.9	16.9	270
Base Metals	1,148	25	2.2	8.7	21.4	534
Diamonds	1,095	21	1.9	8.7	33.2	698
Salt	659	4	0.6	3.6	30.5	122
Coal	640	16	2.5	14.7	6.7	107
Tin, Tantalum & Lithium	456	8	1.8	6.8	49.1	393
Construction Materials	305	3	1.0	5.3	41.7	125
Other	1,625	18	1.1	6.7	18.9	341
TOTAL MINING	43,285	383	0.9	4.5	22.2	8,517

WORKERS' COMPENSATION



PREMIUM RATES FOR THE WESTERN AUSTRALIAN MINERAL INDUSTRY

The Workers' Compensation premium rates determined by the Premium Rates Committee are published in a dedicated Western Australian Government Gazette and are effective from 30 June in the year of issue.

Figure 7 indicates workers' compensation cost trends for selected mineral groups for the 10 year period since 1994/95.

Over the 10 year period coal mining compensation costs reduced by 42 percent and iron ore operations by 31 percent, underground gold operations compensation costs increased by 28 percent and open pit gold operations by 7 percent.

The overall average premium rate for the Western Australian mining industry for 2003/04 is currently 2.43 percent of payroll, a 5 percent reduction on 2002/03 (2.55 percent of payroll).

Figure 7

Mine Workers' Compensation Cost Trends

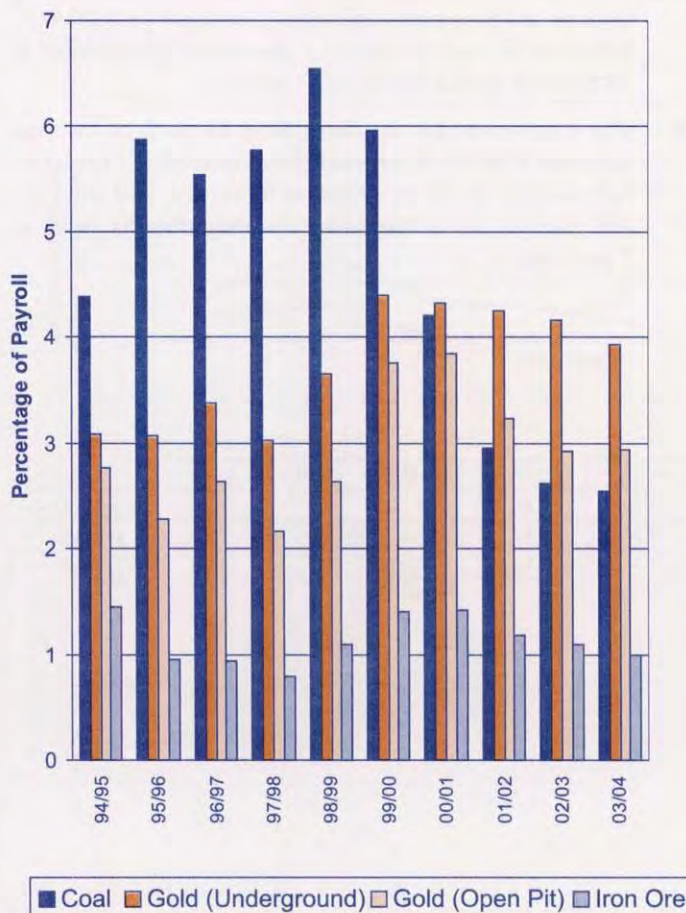


Figure 8 shows the current recommended premium rates for the 2003/04 fiscal year for a variety of mineral groups and other industries.

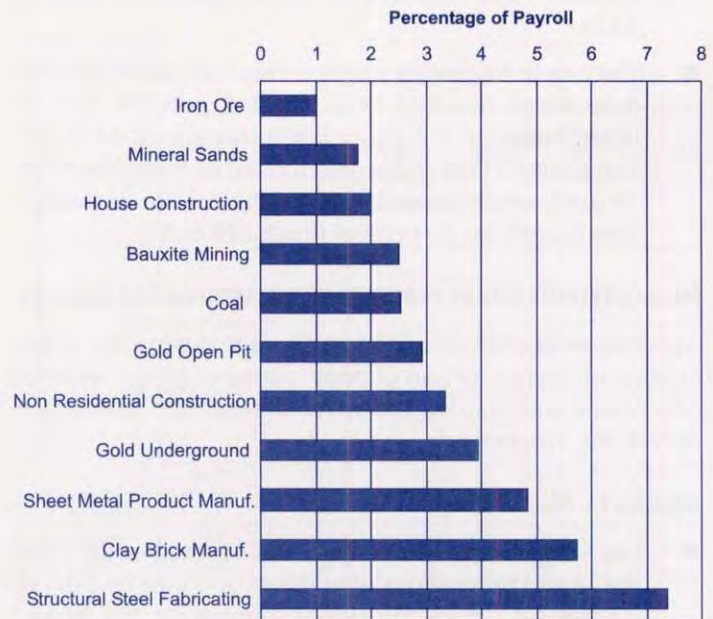
Premium rates for mining industry groups compare favourably with other industry groups such as clay brick manufacturing and structural steel fabrication which have current premium rates of 5.73 and 7.36 percent of payroll, respectively.

The recent trend of the traditionally higher risk mining sectors having lower premium rates than many manufacturing sectors has continued.

Although premium rates in isolation are not necessarily reliable indicators of risk, they do represent a cost to industry and, in part, reflect past accident rates.

Figure 8

Recommended Premium Rates 2003/04





INJURIES BY COMMODITY

METALLIFEROUS PERFORMANCE INDICATORS

The performance indicators for the metalliferous mining sector show mixed results during 2002/03. Figures 9 to 12 depict the performance indicators; incidence, frequency, duration and injury index (see explanatory notes for definitions) for the last five years.

Some interesting trends noted in the performance indicators for metalliferous mines during 2002/03 include the following:

- The overall incidence rate improved by 4 percent, falling from 8.9 to 8.5. The surface incidence rate improved by 4 percent (from 8.2 to 7.9) while the underground incidence rate improved by 14 percent (from 16.1 to 13.8).
- The overall frequency rate of 4.3 remained the same as 2001/02. The surface frequency rate deteriorated slightly by 2 percent (from 4.0 to 4.1) while the underground frequency rate improved by 11 percent (from 6.4 to 5.7).
- The overall duration rate deteriorated by 4 percent, rising to 20.2. The surface duration rate deteriorated by 8 percent (from 19.4 to 21.0) while the underground duration rate improved by 22 percent (from 20.0 to 15.6).
- The rise in frequency rate and duration rate in surface operations resulted in a slight 2 percent overall deterioration in the injury index rising from 84 to 86. The surface injury index deteriorated by 9 percent (from 79 to 86) while the underground injury index improved significantly by 30 percent (from 128 to 89).

METALLIFEROUS INJURY PERCENTAGE BREAKDOWN FOR 2002/03

Appendices D and E provide a percentage breakdown of the number of injuries for part of body, nature of injury, location of accident, and type of accident for underground and surface operations, respectively.

Injuries by Part of Body

- Leg injuries and hand injuries accounted equally for the largest proportions of underground injuries both at 23 percent. Back injuries accounted for the largest proportion of surface injuries also at 23 percent. Of the underground leg injuries, 85 percent were to knees and ankles.
- Back injuries accounted for the next largest proportion of injuries underground at 19 percent, followed by arm injuries at 14 percent.
- Leg injuries accounted for the second largest proportion of surface injuries (22 percent), followed by hand injuries at 16 percent. Of the leg injuries, 71 percent were to knees and ankles.

Injuries by Nature

- Strains were the highest ranking nature of injury for both underground and surface injuries at 32 percent and 37 percent respectively.
- The second highest ranking nature of underground injury was laceration (12 percent), followed by fracture at 11 percent.
- The second highest ranking nature of surface injury was fracture (17 percent), followed by bruise/contusion at 8 percent.

Injuries by Location

- Most underground injuries occurred in production and development areas (67 percent), followed by access and haulage ways at 19 percent and workshops at 5 percent.
- The majority of surface injuries occurred in treatment plants (47 percent), followed by open pits at 23 percent and workshops at 10 percent.

Injuries by Type

- Rockfall was the major accident type for underground injuries at 19 percent (up from 12 percent in 2001/02), followed by over exertion or strenuous movements at 18 percent and stepping at 11 percent.
- The most common accident type for surface injuries was over exertion or strenuous movements (27 percent), followed by struck by object at 9 percent, and slip/trip, and caught by or between moving objects both at 7 percent.

INJURIES BY COMMODITY



METALLIFEROUS PERFORMANCE INDICATORS 1998/99 - 2002/03

Figure 9

Incidence Rate

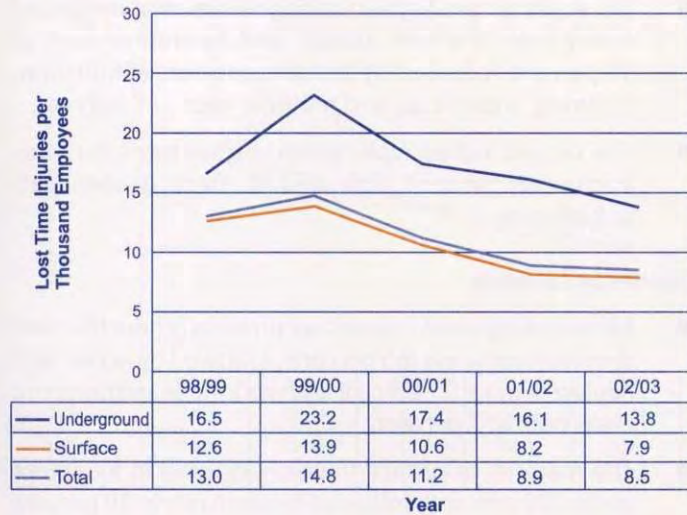


Figure 11

Duration Rate

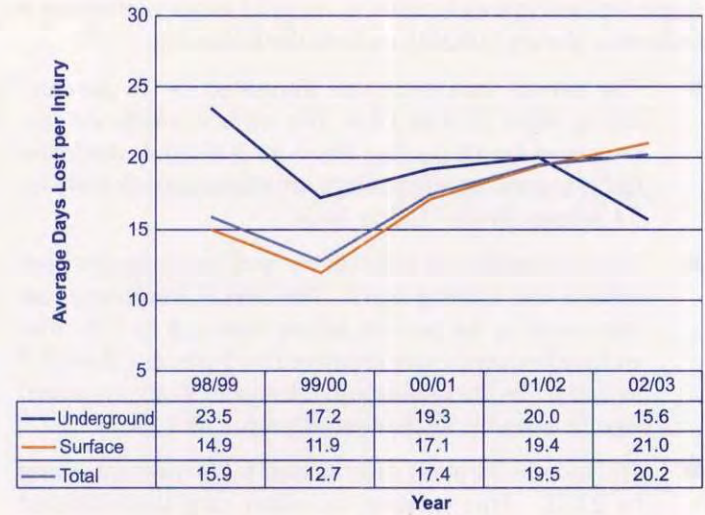


Figure 10

Frequency Rate

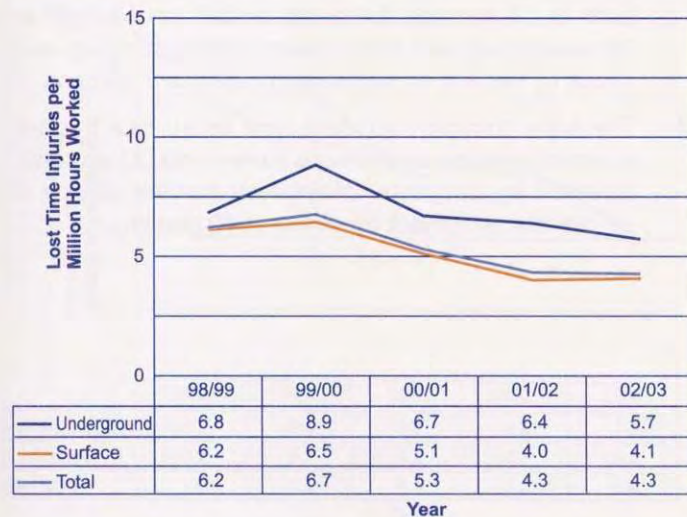
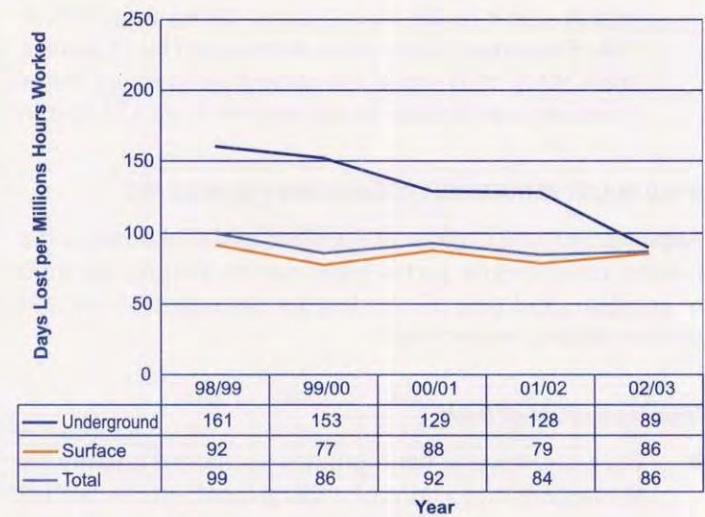


Figure 12

Injury Index





INJURIES BY COMMODITY

GOLD PERFORMANCE INDICATORS

The performance indicators for the gold sector showed mixed results for 2002/03. Figures 13 to 16 depict the performance indicators; incidence, frequency, duration and injury index.

Some interesting trends noted in the gold sector performance indicators during 2002/03 include the following:

- The overall incidence rate improved by 16 percent, falling from 12.4 to 10.4. The surface incidence rate improved by 10 percent (from 11.5 to 10.4) while the underground incidence rate improved significantly by 34 percent (from 16.0 to 10.5).
- A similar trend was noted in the frequency rate for both surface and underground. The overall frequency rate improved by 14 percent falling from 5.8 to 5.0. The surface frequency rate improved by 9 percent (from 5.7 to 5.2) while the underground frequency rate improved significantly by 31 percent (from 6.2 to 4.3).
- The overall duration deteriorated by 16 percent, rising to 21.0. The surface duration rate deteriorated significantly by 38 percent (from 15.6 to 21.5) while the underground duration rate improved by 24 percent (from 25.1 to 19.2).
- The rise in duration rate was less than the fall in frequency rate and resulted in a slight 2 percent overall improvement in the injury index, falling from 106 to 104. The surface injury index deteriorated by 23 percent (from 90 to 111) while the underground injury index improved significantly by 46 percent (from 155 to 83).

GOLD INJURY PERCENTAGE BREAKDOWN FOR 2002/03

Appendices F and G provide a percentage breakdown of the number of injuries for part of body, nature of injury, location of accident, and type of accident for the underground and surface sectors, respectively.

Injuries by Part of Body

- Back injuries and hand injuries accounted equally for the largest proportions of underground injuries both at 24 percent. Leg injuries accounted for the largest proportion of surface injuries at 26 percent. Of the leg injuries, 81 percent were to knees and ankles.
- Leg injuries and arm injuries accounted equally for the next largest proportions of injuries underground both at 17 percent followed by multiple injuries at 14 percent. Of the leg injuries, 80 percent were to knees and ankles.
- Back injuries accounted for the second largest proportion of surface injuries at 21 percent, followed by hand injuries at 17 percent.

Injuries by Nature

- Strains were the highest ranking nature of injury for both underground and surface injuries at 28 percent and 33 percent respectively.
- The equal second highest ranking natures of underground injury were fracture, sprain, and laceration each at 10 percent, followed by bruise/contusion, amputation, crushing, superficial, and multiple each at 7 percent.
- The second highest ranking nature of surface injury was fracture (20 percent), followed by effects of chemicals at 8 percent.

Injuries by Location

- Most underground injuries occurred in production and development areas (65 percent), followed by access and haulage ways at 21 percent and workshops and dumping areas both at 7 percent.
- The majority of surface injuries occurred in treatment plants (38 percent), followed by open pits at 29 percent and workshops at 14 percent.

Injuries by Type

- Over exertion or strenuous movements, and rockfalls were the major accident types for underground injuries both at 21 percent, followed by fall from height at 10 percent and vehicle/equipment jolting, stepping, and struck by vehicle or mobile plant each at 7 percent.
- The most common accident type for surface injuries was over exertion or strenuous movements (23 percent), followed by caught by or between moving objects at 11 percent and struck by object at 10 percent.

INJURIES BY COMMODITY



GOLD PERFORMANCE INDICATORS 1998/99 - 2002/03

Figure 13

Incidence Rate

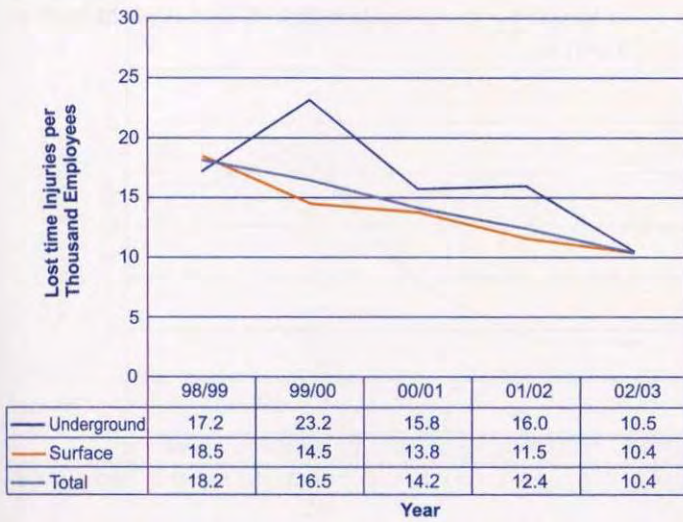


Figure 15

Duration Rate

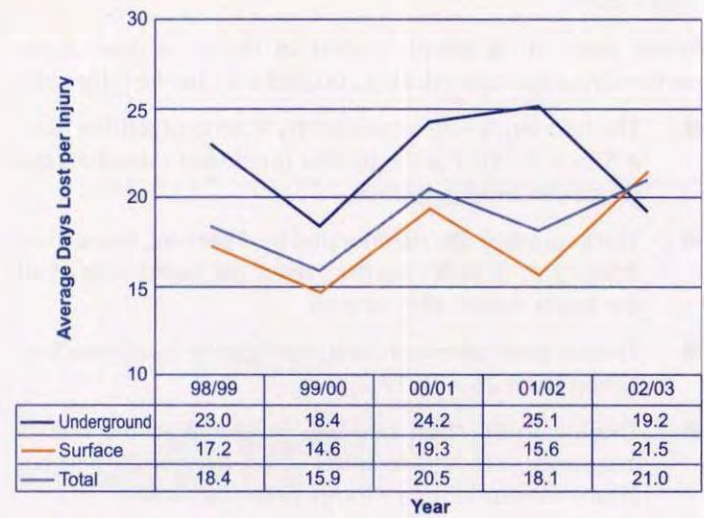


Figure 14

Frequency Rate

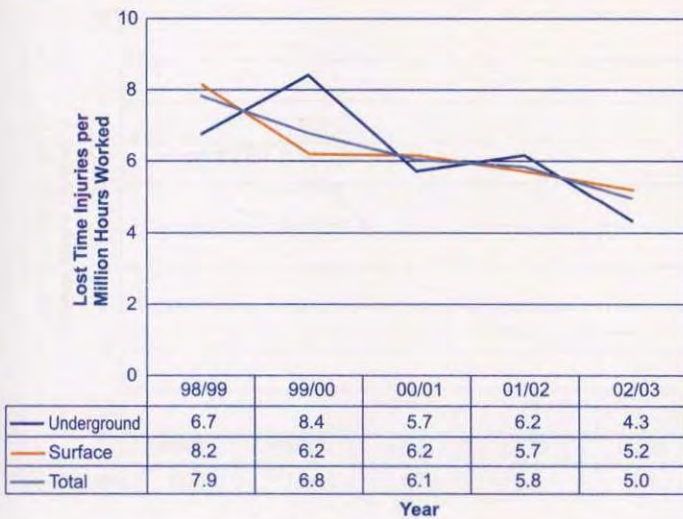
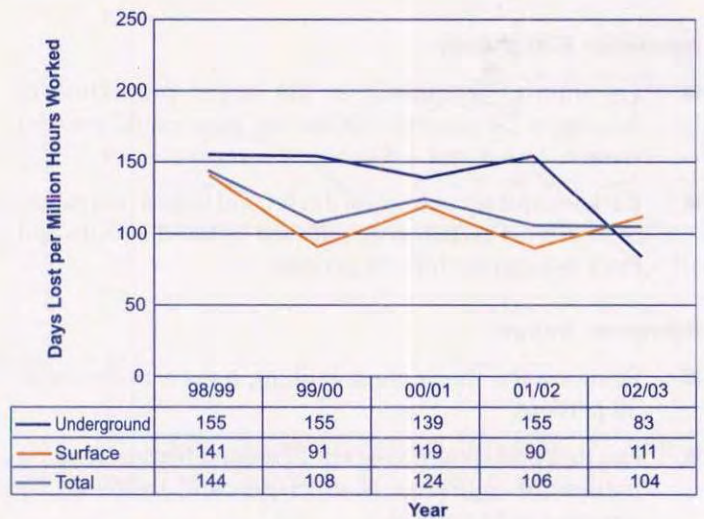


Figure 16

Injury Index





INJURIES By COMMODITY

IRON ORE PERFORMANCE INDICATORS

The performance indicators for the iron ore sector showed mixed results for 2002/03. Figures 17 to 20 depict the performance indicators; incidence, frequency, duration and injury index.

Some interesting trends noted in the iron ore sector performance indicators during 2002/03 include the following:

- The incidence rate improved by 4 percent, falling from 4.5 to 4.3. This is the lowest incidence rate of all the major commodity groups.
- The frequency rate deteriorated by 4 percent, rising from 2.3 to 2.4. This is also the lowest frequency rate of all the major commodity groups.
- The duration rate improved significantly by 30 percent, falling from 25.4 to 17.7.
- The fall in duration rate was greater than the rise in frequency rate and resulted in an overall 26 percent improvement in injury index (from 58 to 43).

IRON ORE INJURY PERCENTAGE BREAKDOWN FOR 2002/03

Appendix H provides a percentage breakdown of the number of injuries for part of body, nature of injury, location of accident, and type of accident.

Injuries by Part of Body

- Leg injuries accounted for the largest proportion of injuries at 24 percent. Of the leg injuries, 82 percent were to knees and ankles.
- Back injuries accounted for the second largest proportion of injuries at 20 percent, followed by hand injuries and neck injuries each at 15 percent.

Injuries by Nature

- Strains were the highest ranking nature of injury at 39 percent.
- Fracture and sprain were equal second highest ranking natures of injury each at 13 percent, followed by crushing at 11 percent.

Injuries by Location

- The majority of injuries occurred in open pits which accounted for 31 percent.
- The next largest proportion occurred in treatment plants (24 percent), followed by railways at 11 percent.

Injuries by Type

- Over exertion or strenuous movements was the most common type of accident resulting in injury (20 percent).
- Stepping was the second most common type (13 percent), followed by struck against object, and slip/trip both at 9 percent.

INJURIES BY COMMODITY



IRON ORE PERFORMANCE INDICATORS 1998/99 - 2002/03

Figure 17

Incidence Rate

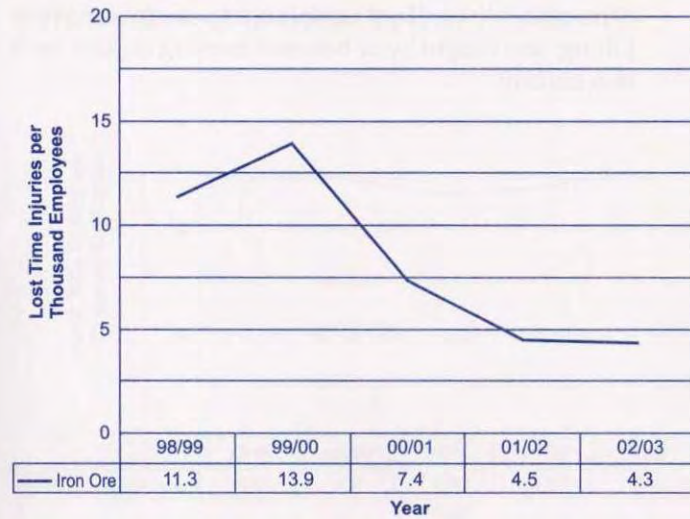


Figure 19

Duration Rate

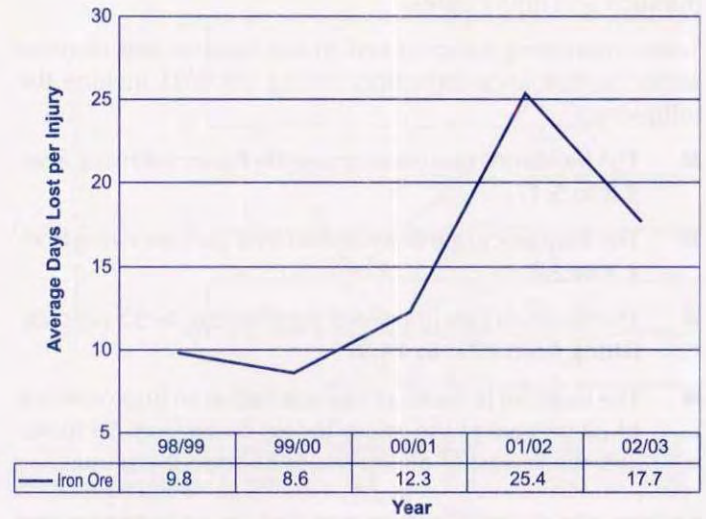


Figure 18

Frequency Rate

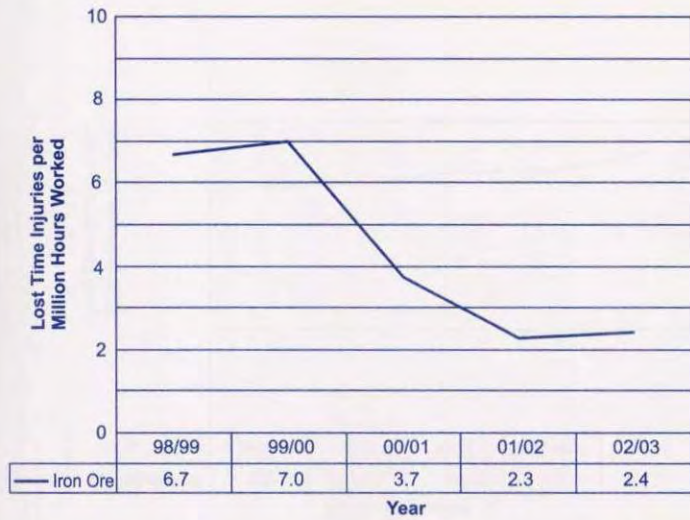
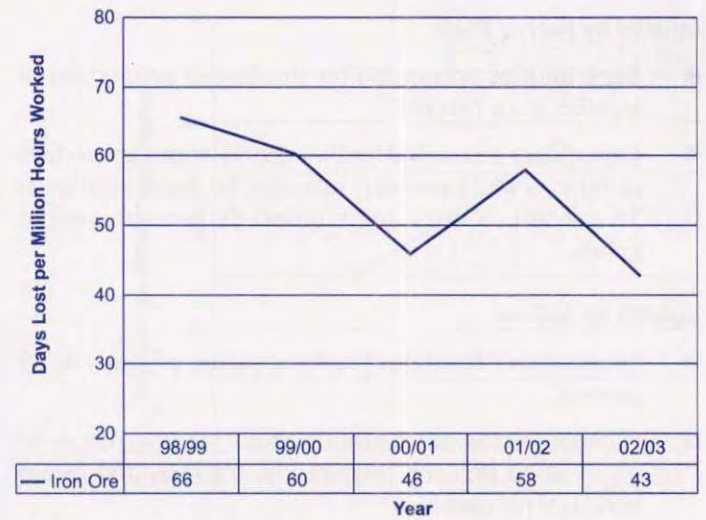


Figure 20

Injury Index





INJURIES BY COMMODITY

BAUXITE AND ALUMINA PERFORMANCE INDICATORS

There were mixed results in the performance indicators for the bauxite and alumina sector during 2002/03. Figures 21 to 24 depict the performance indicators; incidence, frequency, duration and injury index.

Some interesting trends noted in the bauxite and alumina sector performance indicators during 2002/03 include the following:

- The incidence rate deteriorated by 6 percent rising from 4.8 to 5.1.
- The frequency rate deteriorated by 8 percent rising from 2.5 to 2.7.
- The duration rate improved significantly by 33 percent, falling from 22.4 to 14.9.
- The large fall in duration rate resulted in an improvement of 29 percent to the injury index, down from 56 to 40. Still the lowest of all the major commodity groups.

BAUXITE AND ALUMINA INJURY PERCENTAGE BREAKDOWN FOR 2002/03

Appendix I provides a percentage breakdown of the number of injuries for part of body, nature of injury, location of accident, and type of accident.

Injuries by Part of Body

- Back injuries accounted for the largest proportion of injuries at 26 percent.
- Leg injuries accounted for the second largest proportion of injuries at 21 percent, followed by hand injuries at 18 percent. Of the leg injuries, 86 percent were to knees.

Injuries by Nature

- Strains were the highest ranking nature of injury at 59 percent.
- Laceration was the second highest ranking nature of injury at 12 percent, followed by fracture, and sprain both at 9 percent.

Injuries by Location

- The majority of injuries occurred in treatment plants which accounted for 88 percent.
- The next largest proportion occurred in workshops (9 percent), followed by surface general at 3 percent.

Injuries by Type

- Over exertion or strenuous movements was the most common type of accident resulting in injury (50 percent).
- Struck against object was the second highest proportion (9 percent), followed by struck by object, vehicle/equipment jolting, and caught by or between moving objects each at 6 percent.

INJURIES BY COMMODITY



BAUXITE AND ALUMINA PERFORMANCE INDICATORS 1998/99 - 2002/03

Figure 21

Incidence Rate

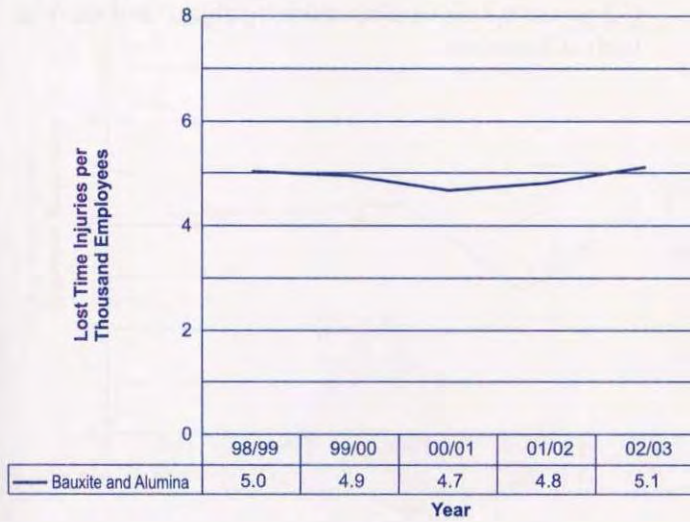


Figure 23

Duration Rate

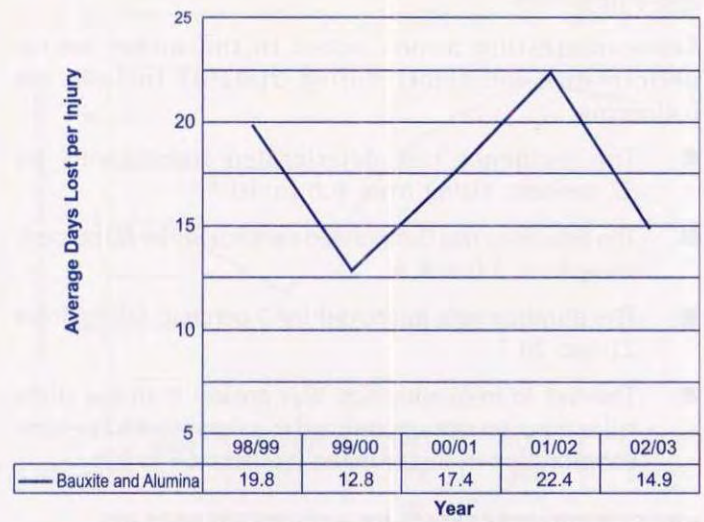


Figure 22

Frequency Rate

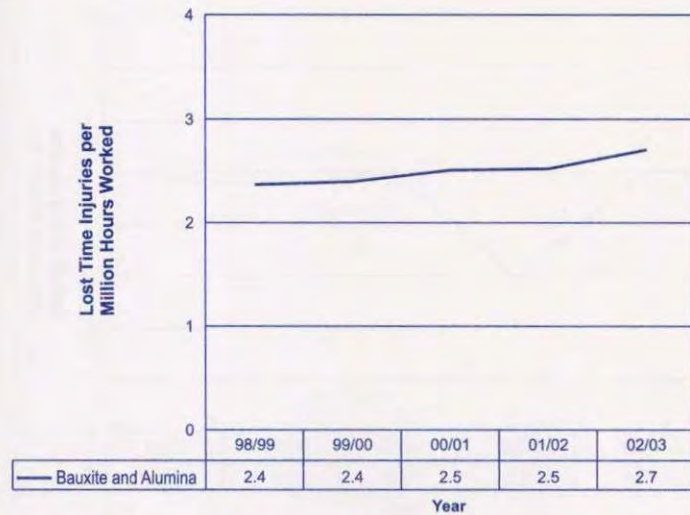
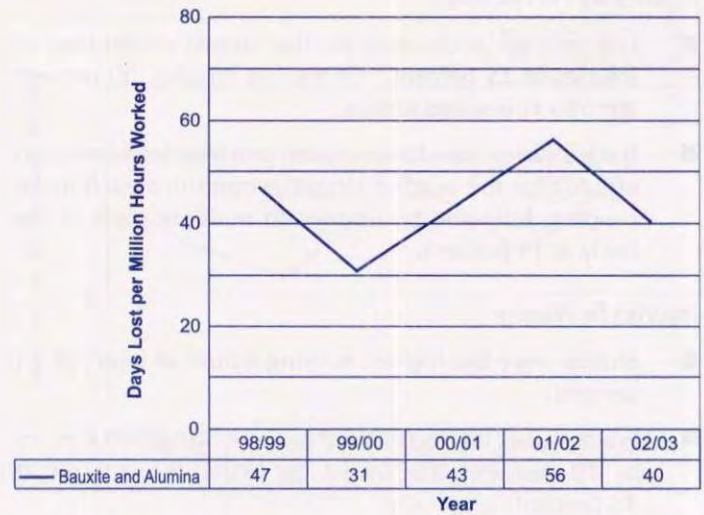


Figure 24

Injury Index





INJURIES By COMMODITY

NICKEL PERFORMANCE INDICATORS

There were mixed results in the performance indicators for the nickel sector during 2002/03. Figures 25 to 28 depict the performance indicators; incidence, frequency, duration and injury index.

Some interesting trends noted in the nickel sector performance indicators during 2002/03 include the following:

- The incidence rate deteriorated significantly by 57 percent, rising from 6.8 to 10.7.
- The frequency rate deteriorated significantly by 60 percent, rising from 3.0 to 4.8.
- The duration rate improved by 5 percent, falling from 21.8 to 20.7.
- The rise in frequency rate was greater than the slight fall in duration rate and resulted in a significant 52 percent deterioration in injury index (up from 65 to 99).

NICKEL INJURY PERCENTAGE BREAKDOWN FOR 2002/03

Appendix J provides a percentage breakdown of the number of injuries for part of body, nature of injury, location of accident, and type of accident.

Injuries by Part of Body

- Leg injuries accounted for the largest proportion of injuries at 25 percent. Of the leg injuries, 50 percent were to knees and ankles.
- Back injuries, hand injuries and arm injuries accounted equally for the second largest proportions each at 14 percent, followed by injuries to multiple parts of the body at 11 percent.

Injuries by Nature

- Strains were the highest ranking nature of injury at 25 percent.
- Fracture was the second highest ranking nature of injury at 18 percent, followed by bruise/contusion at 16 percent.

Injuries by Location

- The majority of injuries occurred in treatment plants which accounted for 46 percent.
- The next largest proportion occurred underground (21 percent), followed by open pits at 14 percent.

Injuries by Type

- Over exertion or strenuous movements was the most common type of accident resulting in injury (18 percent).
- Fall from height was the second highest proportion (12 percent), followed by struck by object, and slip/trip both at 9 percent.

INJURIES BY COMMODITY



NICKEL PERFORMANCE INDICATORS 1998/99 - 2002/03

Figure 25

Incidence Rate

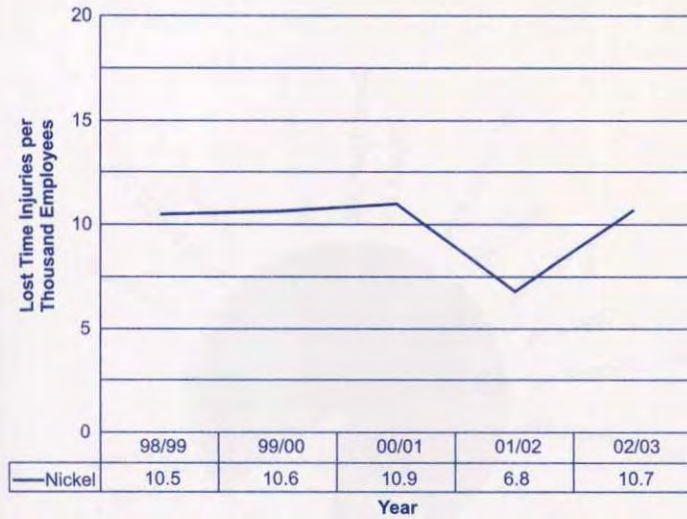


Figure 27

Duration Rate

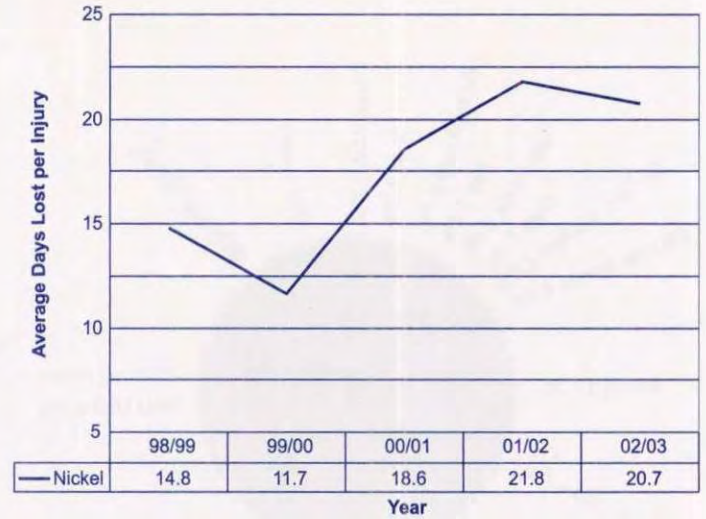


Figure 26

Frequency Rate

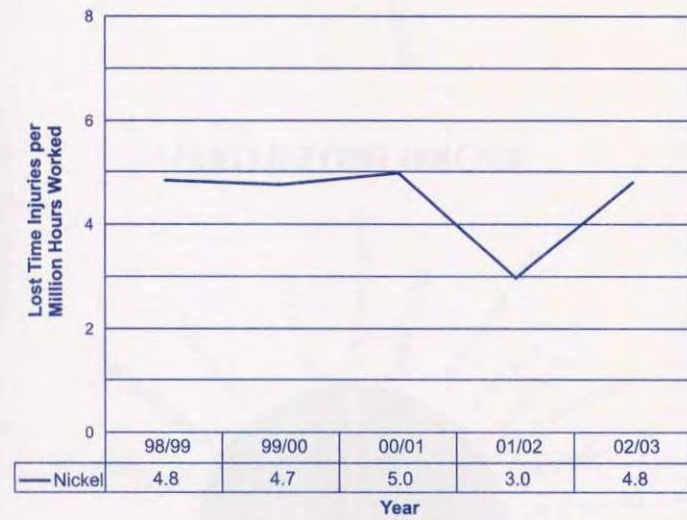
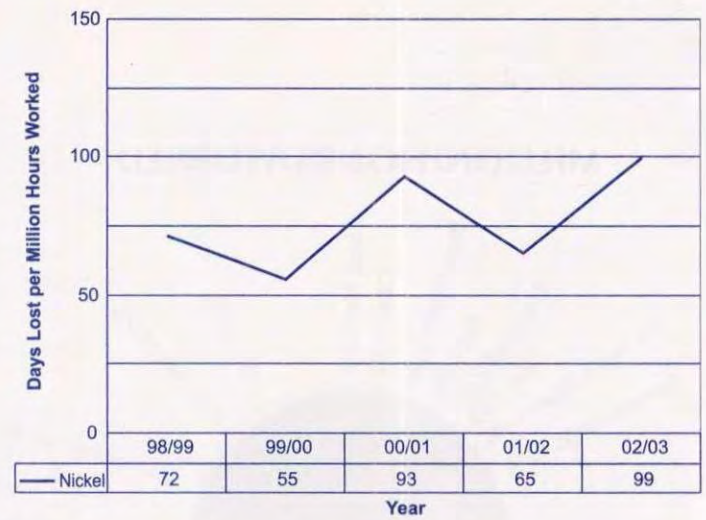


Figure 28

Injury Index

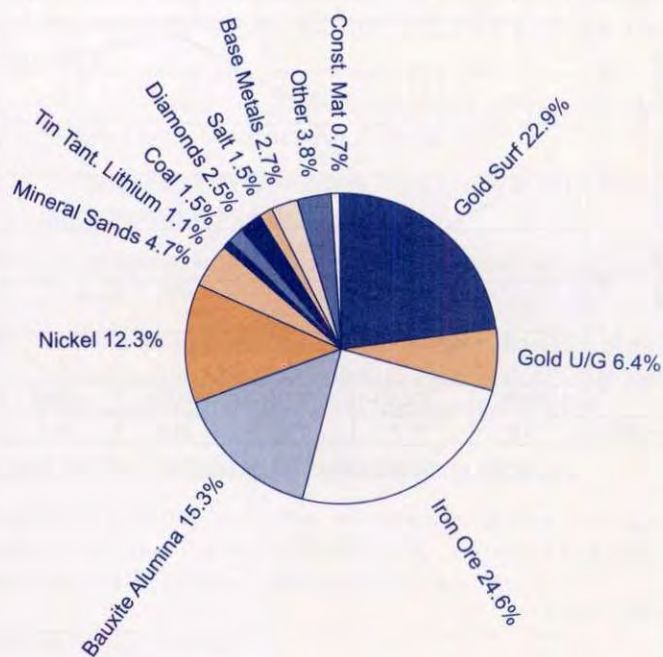




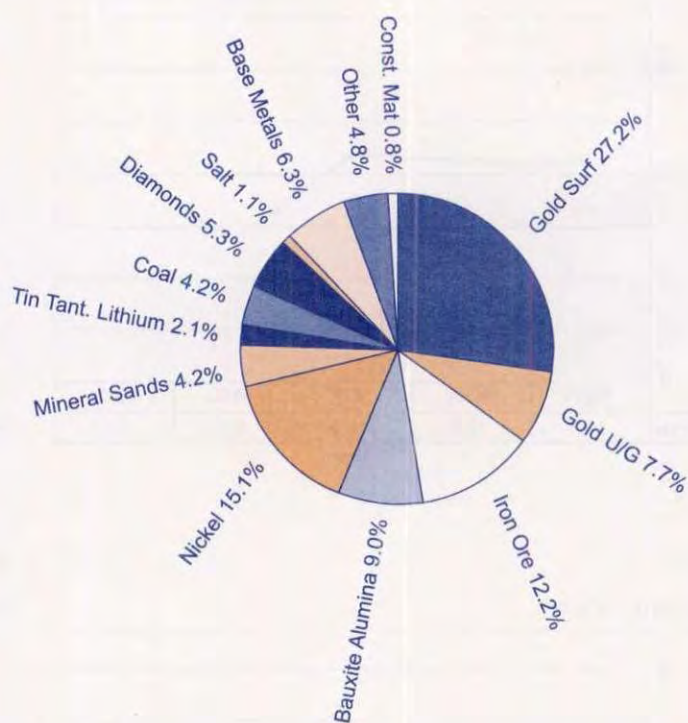
APPENDIX A

WESTERN AUSTRALIAN MINES 2002/03 FINANCIAL YEAR – 378 INJURIES

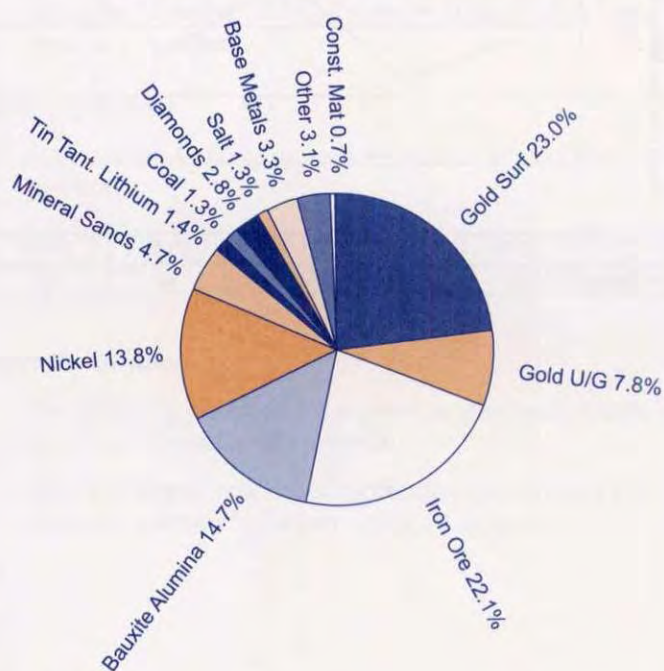
NUMBER OF EMPLOYEES



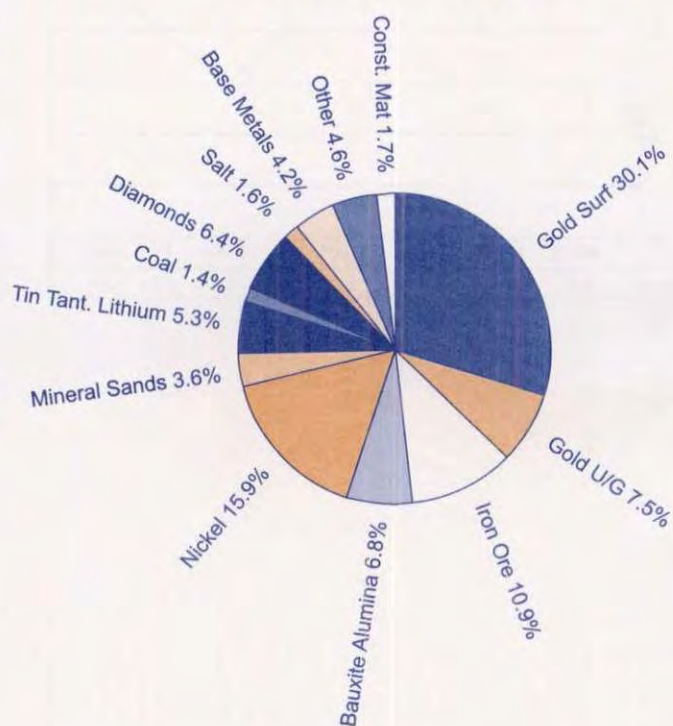
NUMBER OF INJURIES



MILLION HOURS WORKED



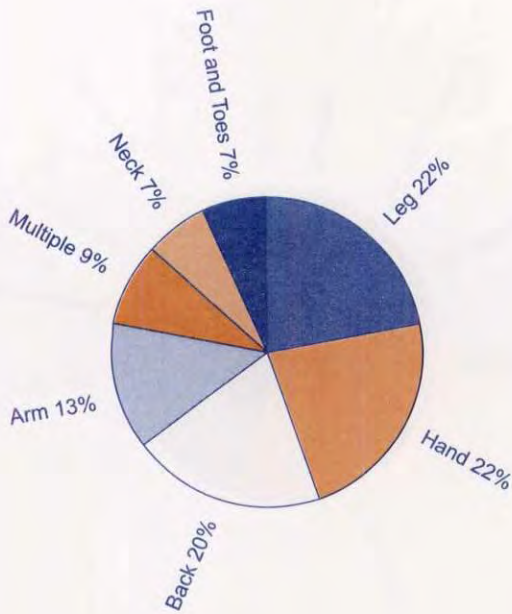
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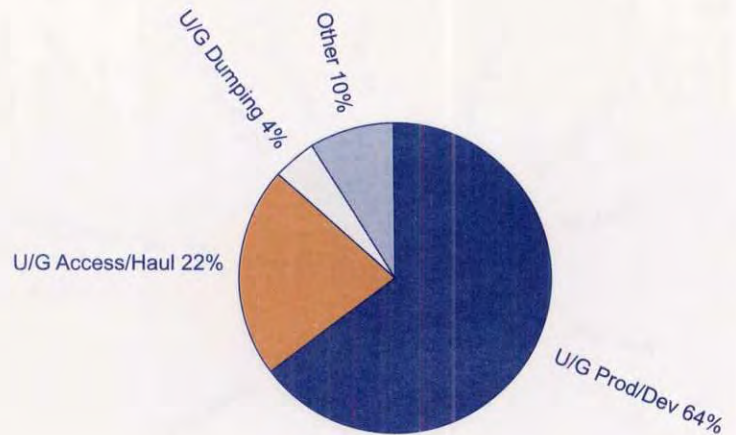


SERIOUS INJURIES UNDERGROUND 2002/03 – 45 INJURIES

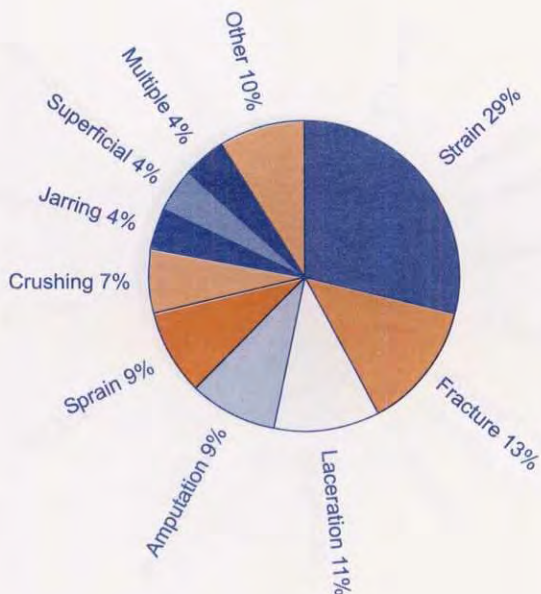
PART OF BODY



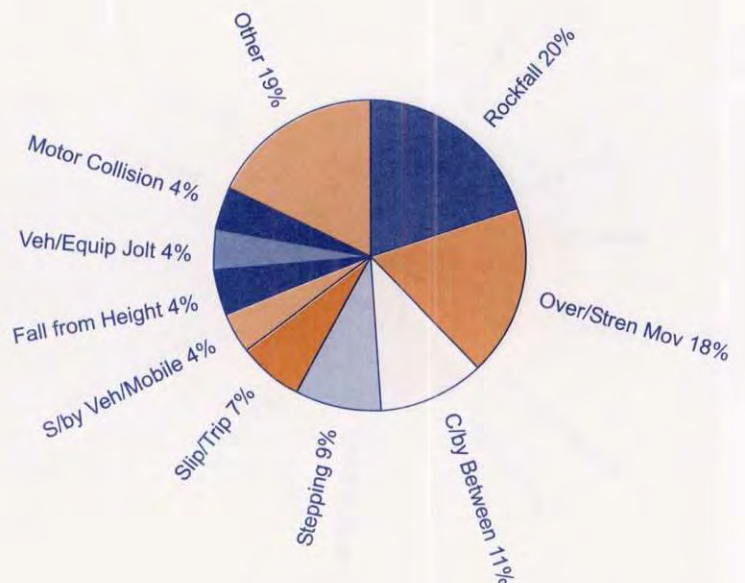
LOCATION OF ACCIDENT



NATURE OF INJURY



TYPE OF ACCIDENT

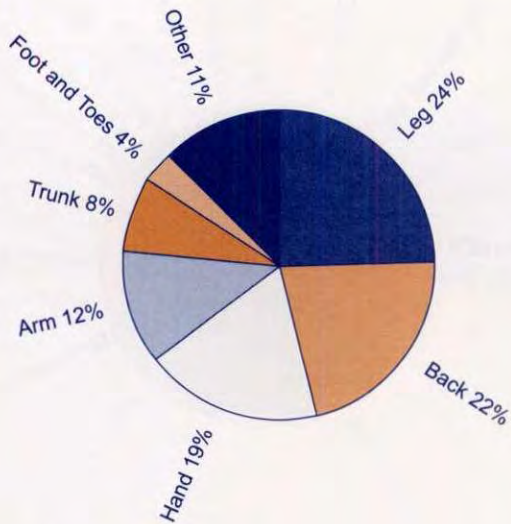




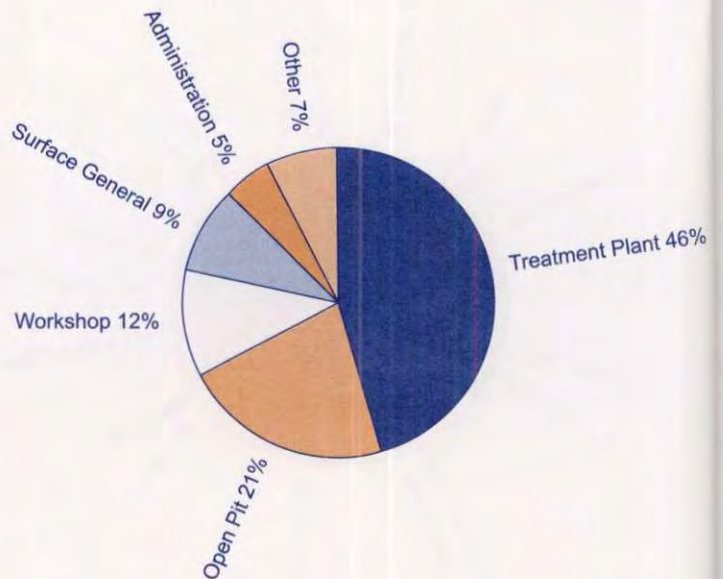
APPENDIX C

SERIOUS INJURIES SURFACE 2002/03 – 226 INJURIES

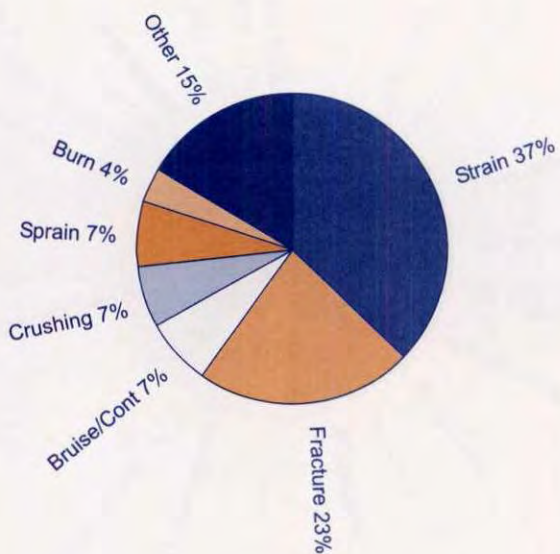
PART OF BODY



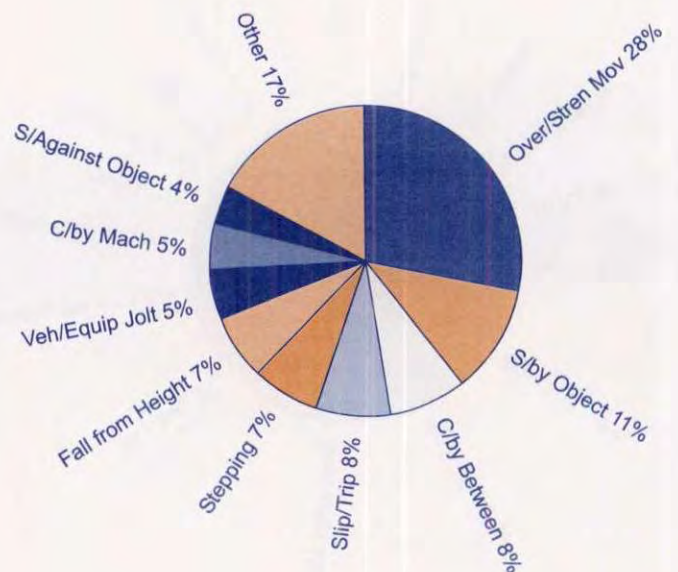
LOCATION OF ACCIDENT



NATURE OF INJURY



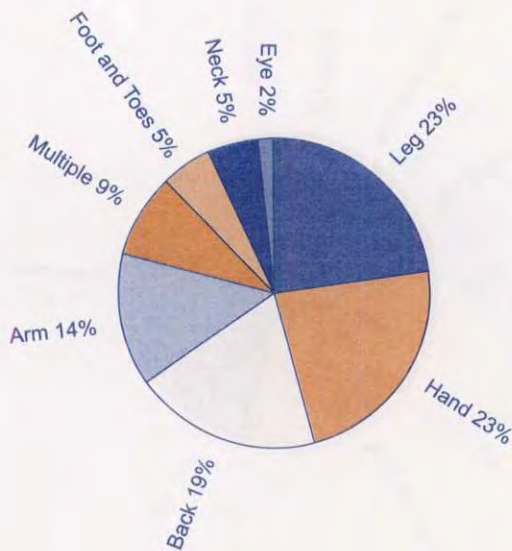
TYPE OF ACCIDENT



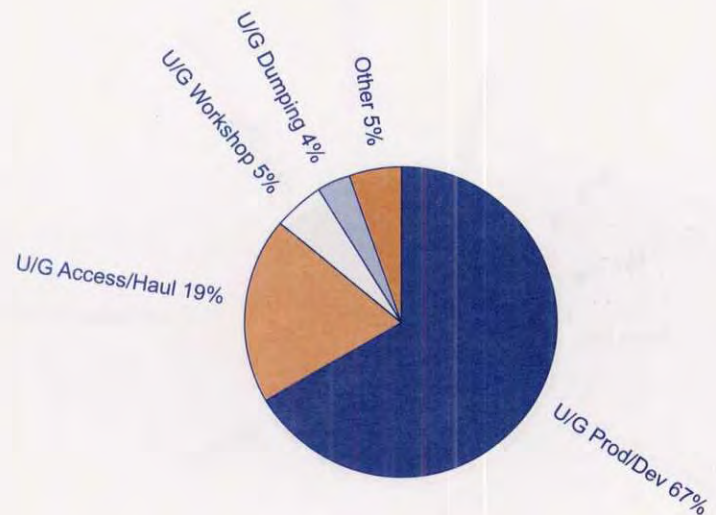


METALLIFEROUS UNDERGROUND INJURIES 2002/03 – 57 INJURIES

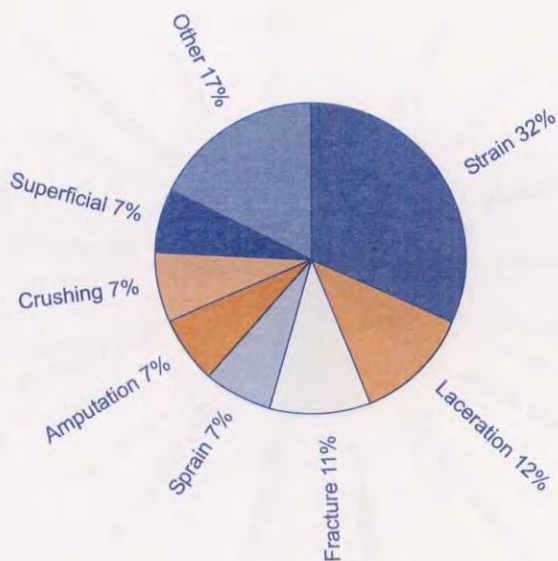
PART OF BODY



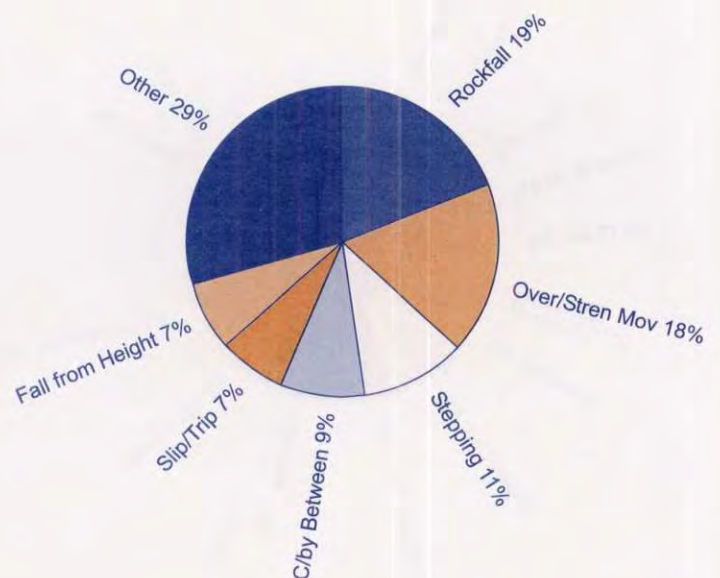
LOCATION OF ACCIDENT



NATURE OF INJURY



TYPE OF ACCIDENT

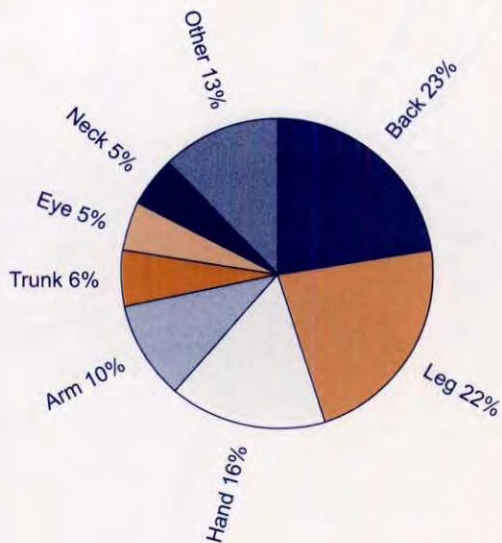




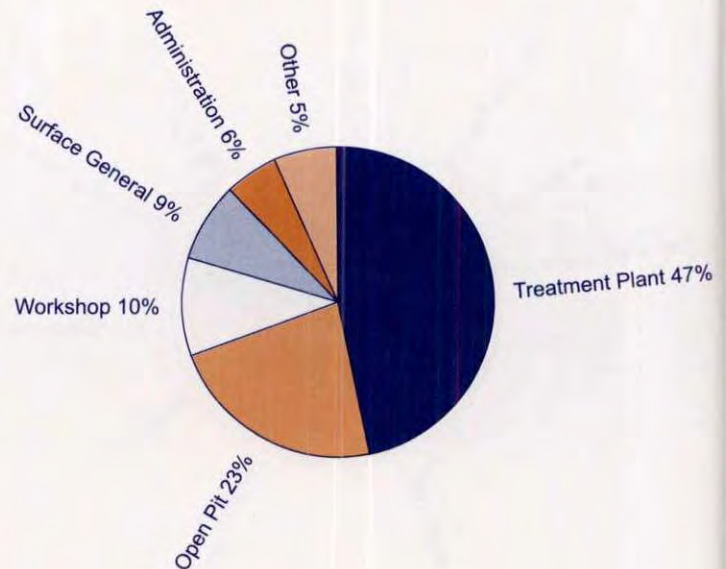
APPENDIX E

METALLIFEROUS SURFACE INJURIES 2002/03 – 305 INJURIES

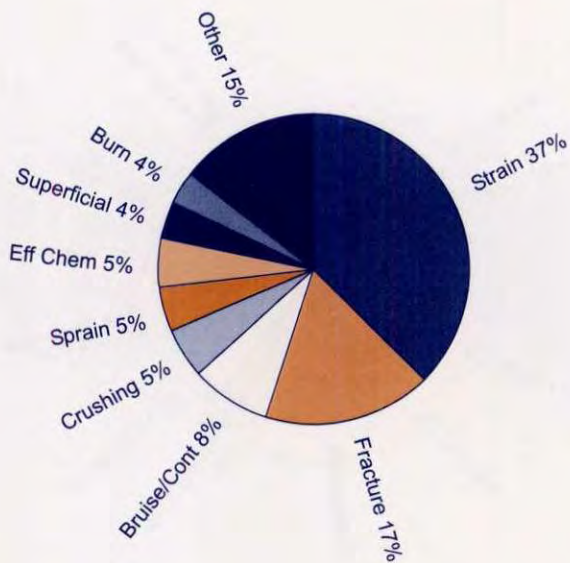
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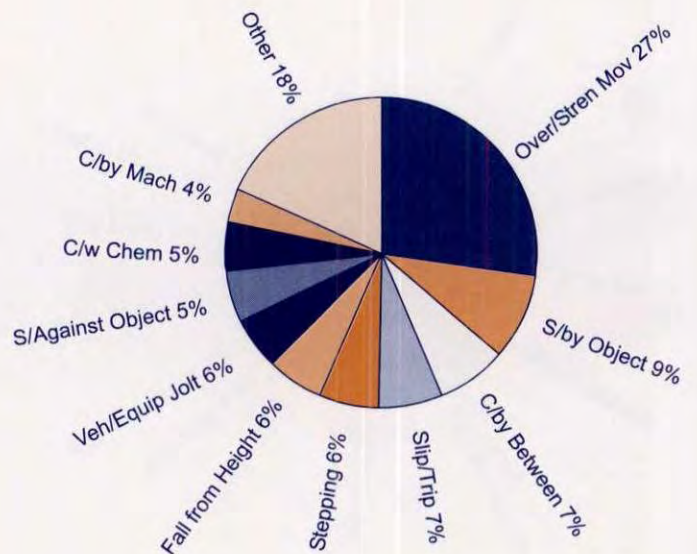
LOCATION OF ACCIDENT



NATURE OF INJURY



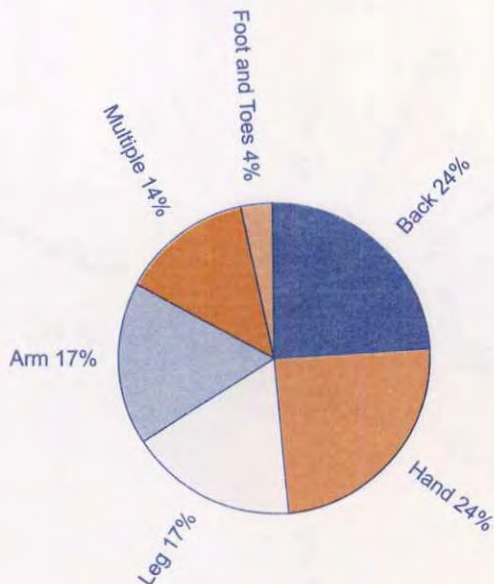
TYPE OF ACCIDENT



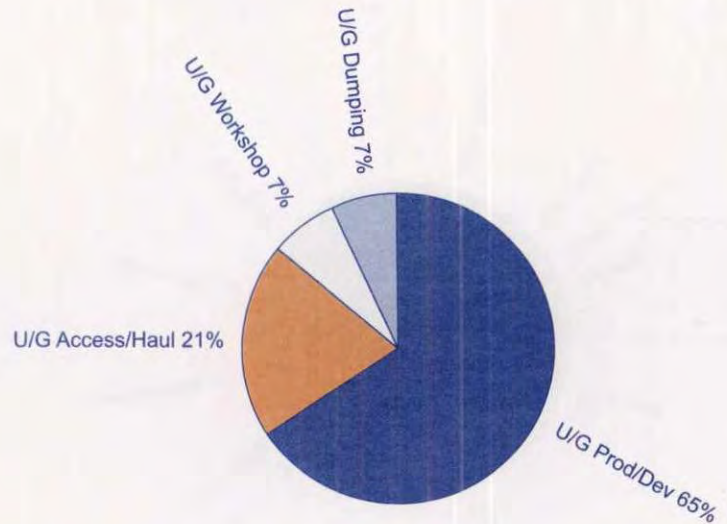


GOLD UNDERGROUND INJURIES 2002/03 – 29 INJURIES

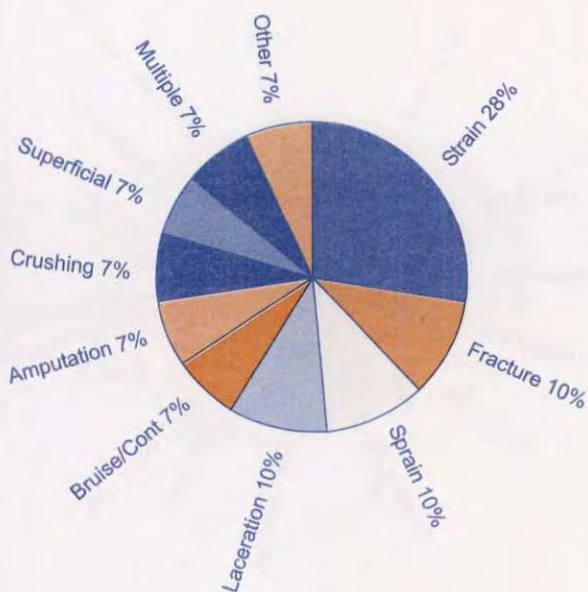
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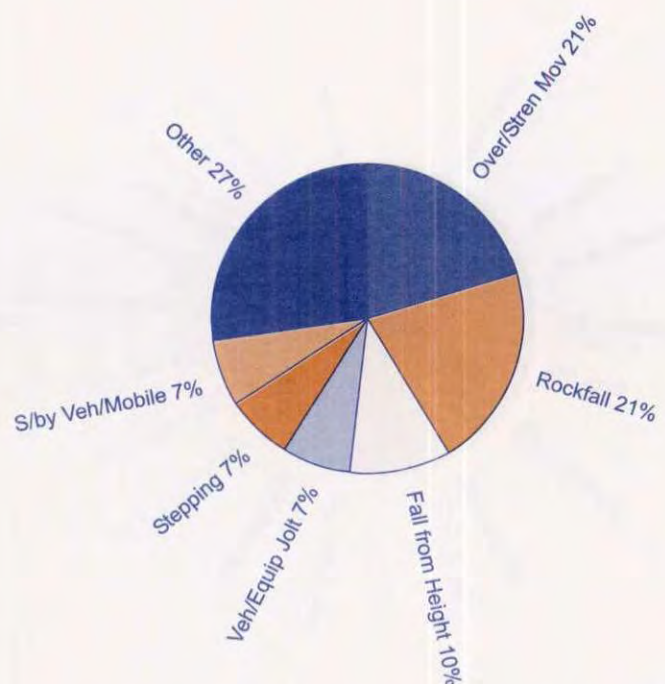
LOCATION OF ACCIDENT



NATURE OF INJURY



TYPE OF ACCIDENT

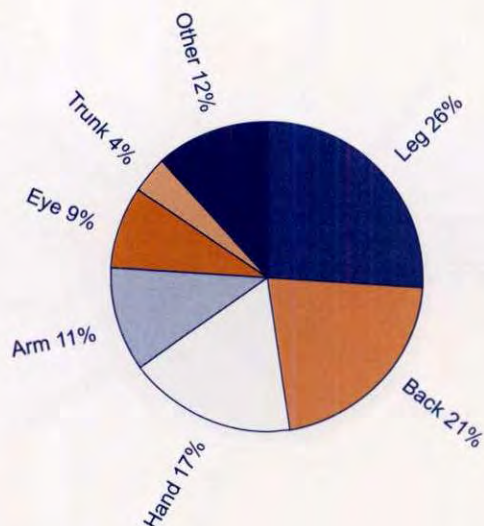




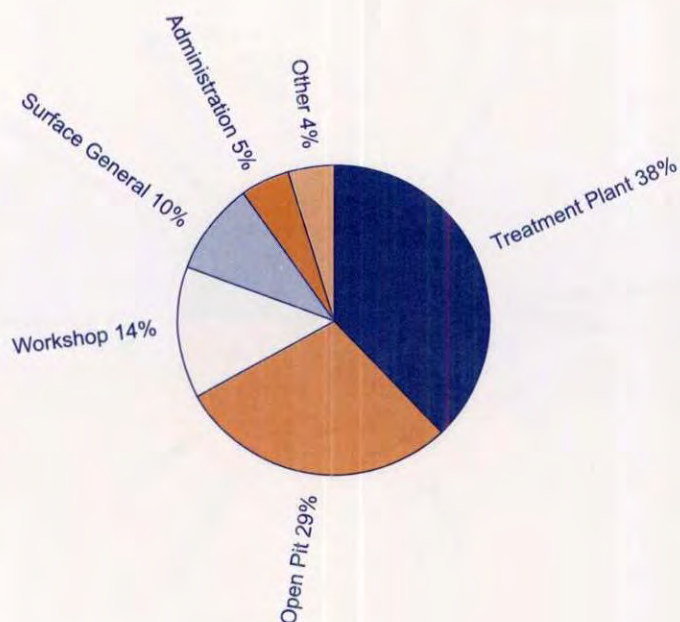
APPENDIX G

GOLD SURFACE INJURIES 2002/03 – 103 INJURIES

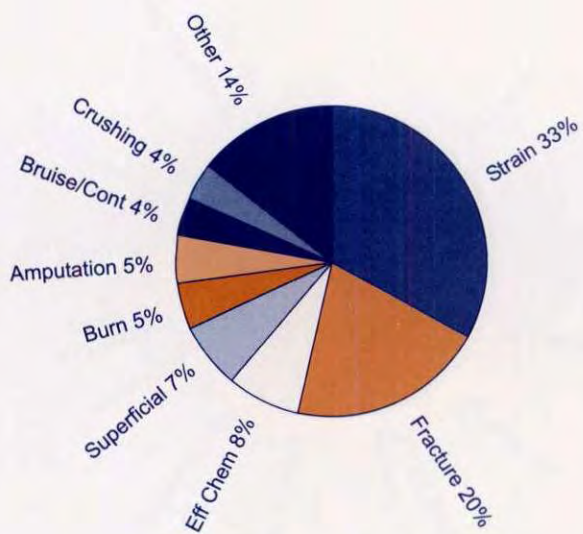
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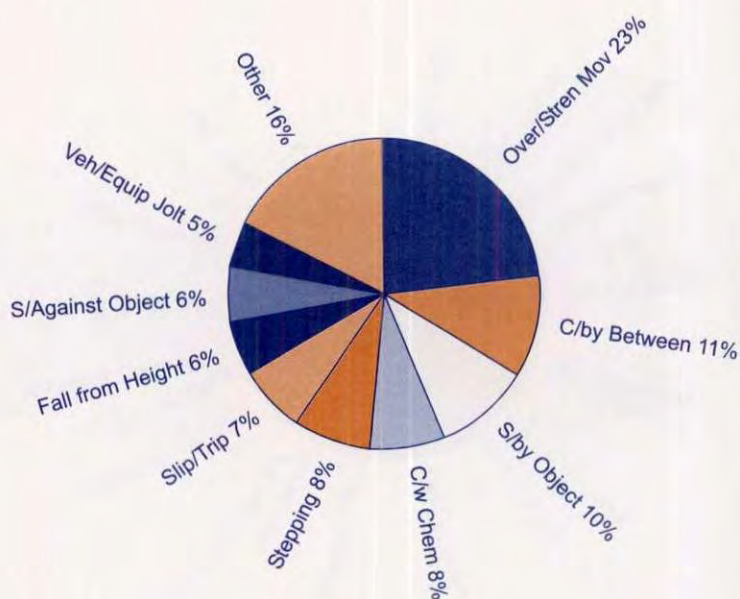
LOCATION OF ACCIDENT



NATURE OF INJURY



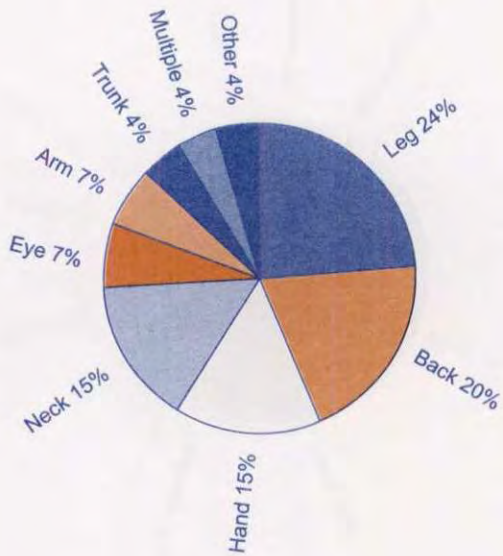
TYPE OF ACCIDENT



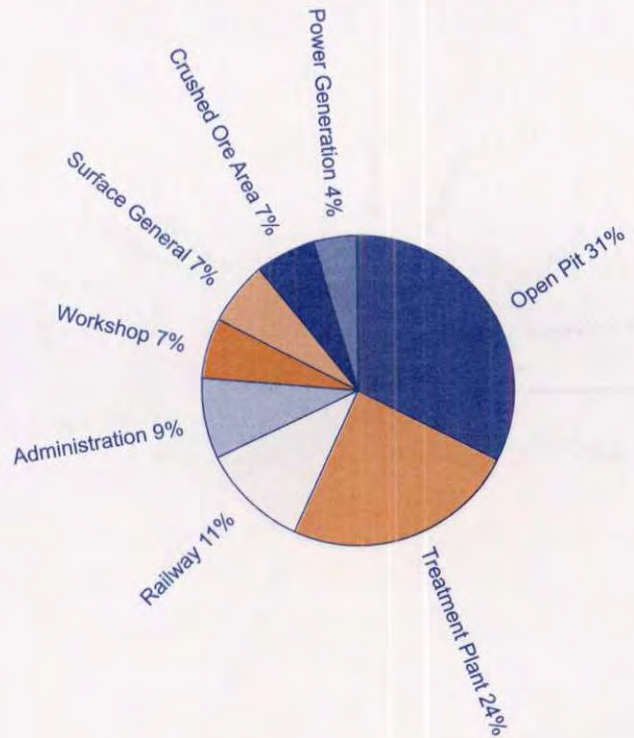


IRON ORE INJURIES 2002/03 – 46 INJURIES

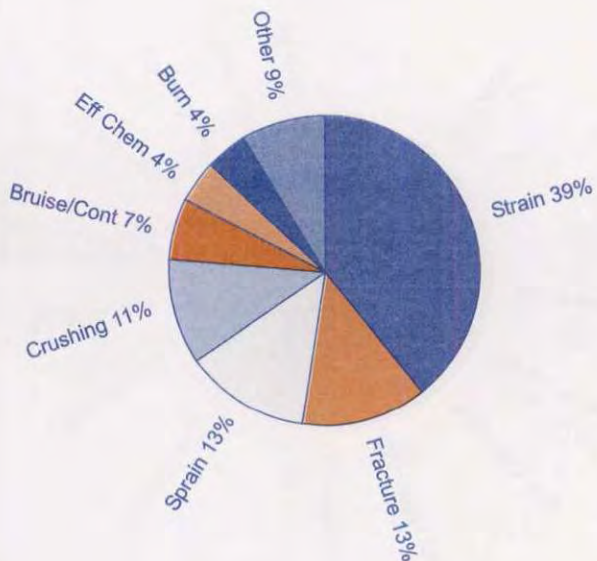
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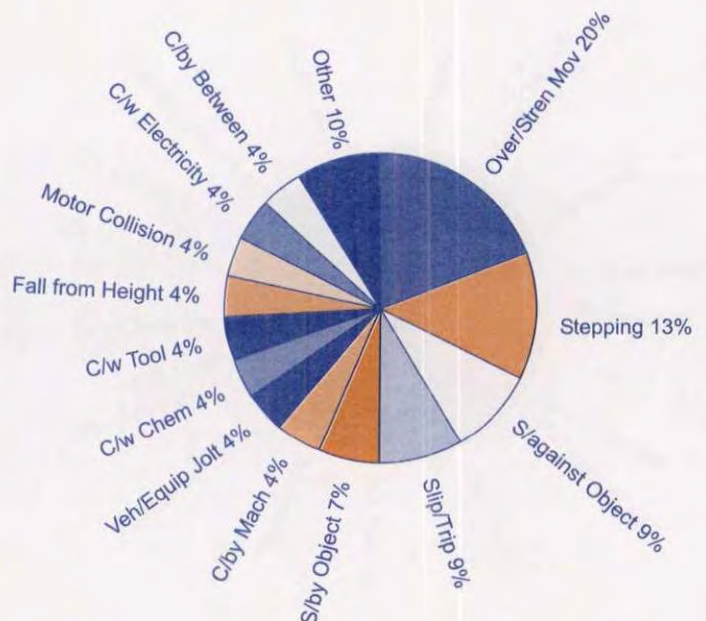
LOCATION OF ACCIDENT



NATURE OF INJURY



TYPE OF ACCIDENT

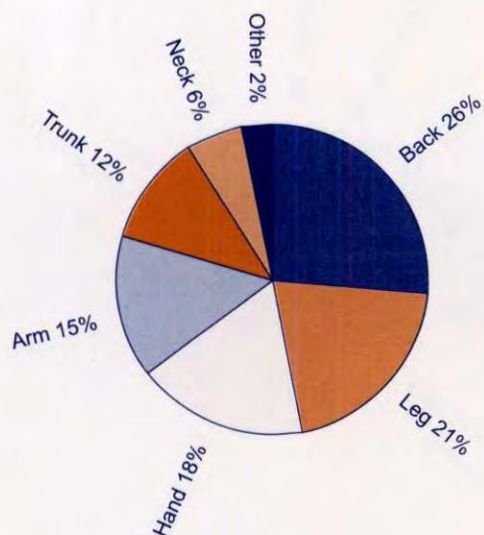




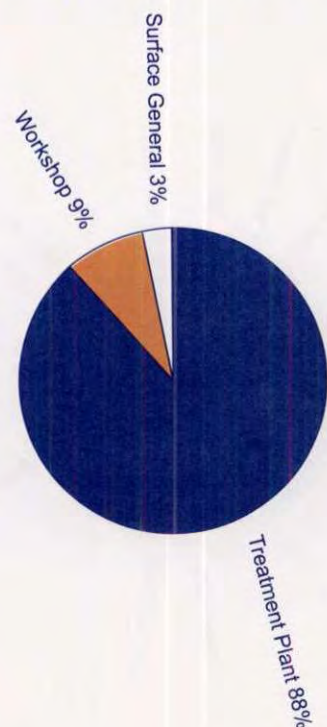
APPENDIX I

BAUXITE AND ALUMINA INJURIES 2002/03 – 34 INJURIES

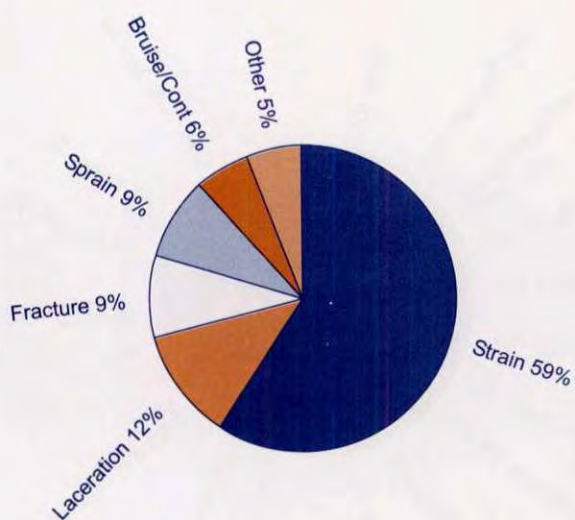
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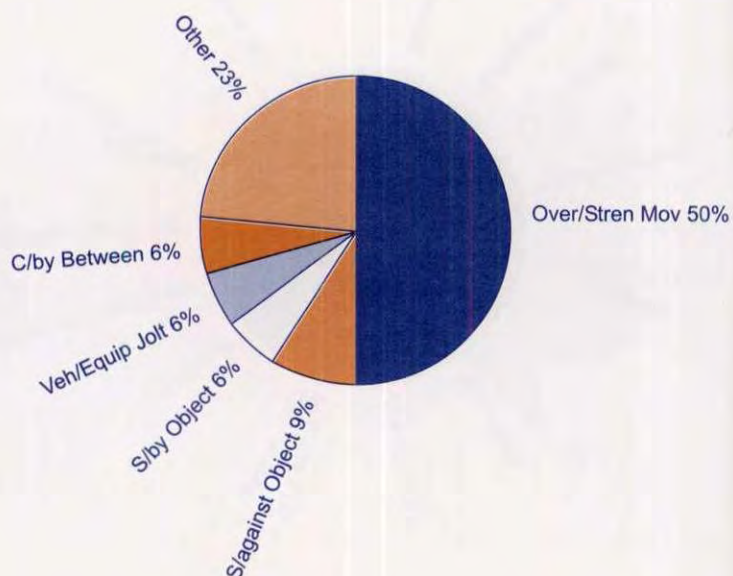
LOCATION OF ACCIDENT



NATURE OF INJURY



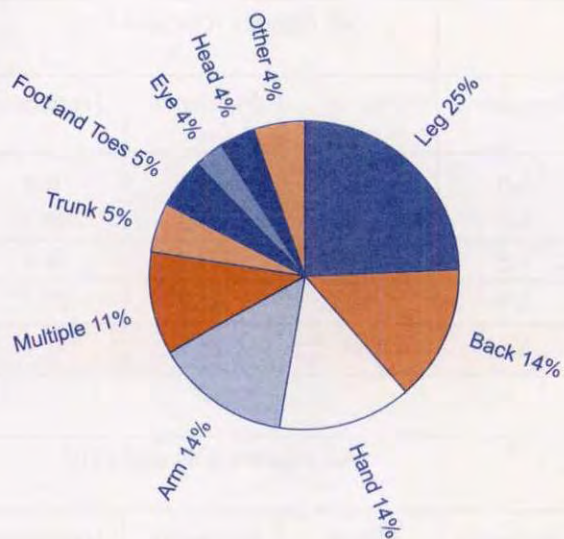
TYPE OF ACCIDENT



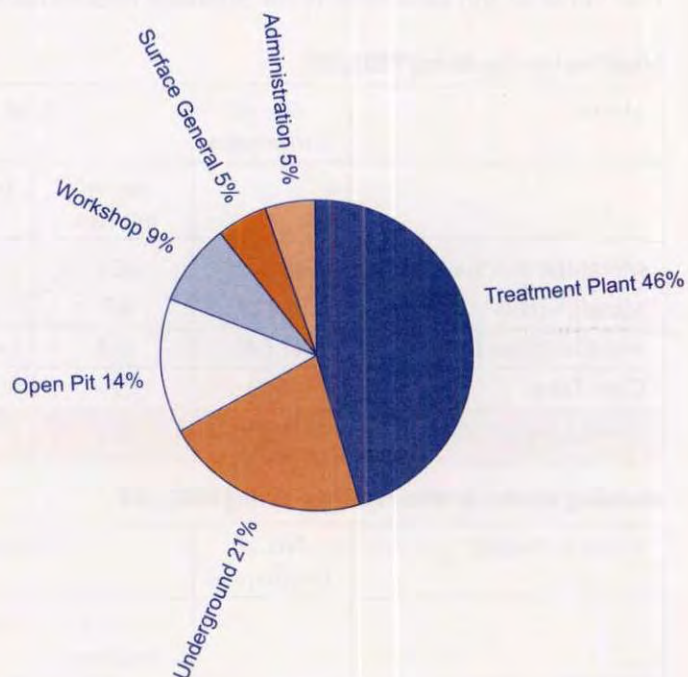


NICKEL INJURIES 2002/03 – 57 INJURIES

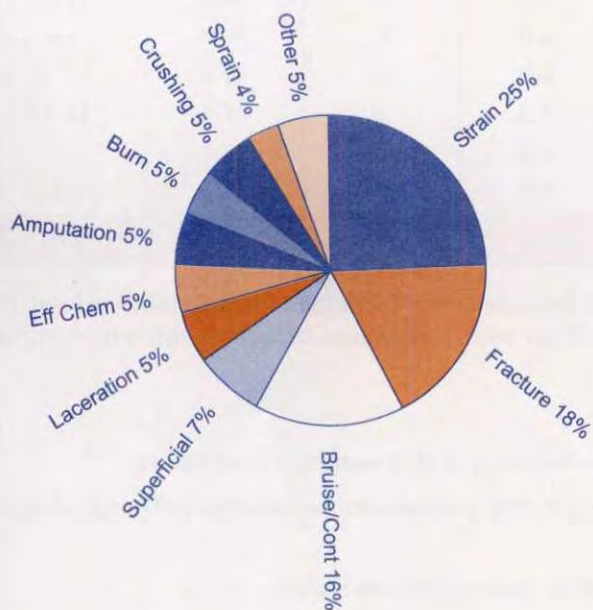
PART OF BODY



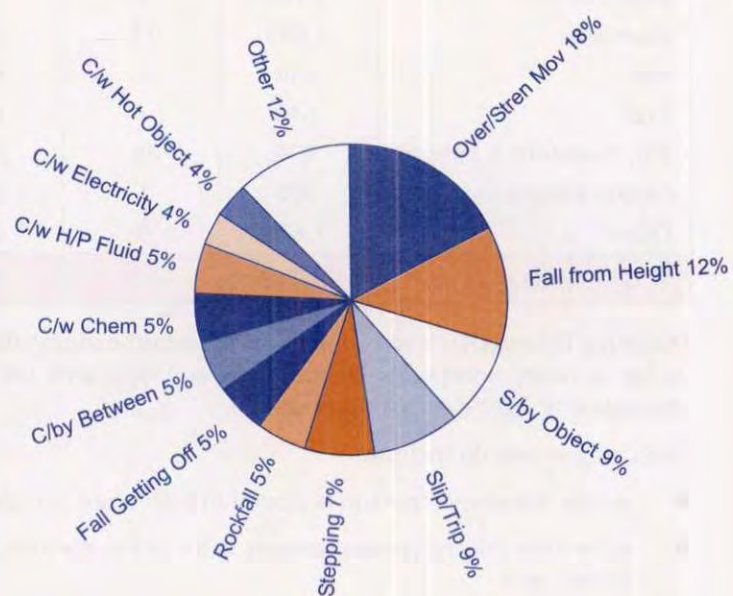
LOCATION OF ACCIDENT



NATURE OF INJURY



TYPE OF ACCIDENT





APPENDIX K

DISABLING INJURIES 2002/03 – 475 INJURIES

During the 2002/03 fiscal year, in addition to the 378 lost time injuries, there were 475 disabling injuries (DIs) reported (468 in metalliferous mines and 7 in coal mines), bringing the total number of reportable injuries to 853. A breakdown of this data together with performance indicators is shown in the tables below.

Two hundred and sixty three of the disabling injuries resulted in the injured person being disabled for two weeks or more.

Disabling Injuries during 2002/03

Mines	No. of Employees	Disabling Injuries			All Injuries (DIs and LTIs)		
		No. of Injuries	Incidence	Frequency	No. of Injuries	Incidence	Frequency
Metalliferous Surface	38,516	401	10.4	5.4	706	18.3	9.4
Metalliferous U/Ground	4,129	67	16.2	6.7	124	30.0	12.4
Metalliferous Total	42,645	468	11.0	5.5	830	19.5	9.8
Coal Total	640	7	10.9	6.4	23	35.9	21.1
TOTAL MINING	43,285	475	11.0	5.5	853	19.7	9.9

Disabling Injuries by Mineral Mined during 2002/03

Mineral Mined	No. of Employees	Disabling Injuries			All Injuries (DIs and LTIs)		
		No. of Injuries	Incidence	Frequency	No. of Injuries	Incidence	Frequency
Gold	12,702	185	14.6	7.0	317	25.0	11.9
Iron Ore	10,635	44	4.1	2.3	90	8.5	4.7
Bauxite & Alumina	6,627	154	23.2	12.2	188	28.4	14.9
Nickel	5,343	48	9.0	4.0	105	19.7	8.9
Mineral Sands	2,050	0	0.0	0.0	16	7.8	3.9
Base Metals	1,148	9	7.8	3.1	33	28.7	11.5
Diamonds	1,095	11	10.0	4.5	31	28.3	12.8
Salt	659	0	0.0	0.0	4	6.1	3.6
Coal	640	7	10.9	6.4	23	35.9	21.1
Tin, Tantalum & Lithium	456	11	24.1	9.3	19	41.7	16.1
Construction Materials	305	1	3.3	1.8	4	13.1	7.0
Other	1,625	5	3.1	1.9	23	14.2	8.6
TOTAL MINING	43,285	475	11.0	5.5	853	19.7	9.9

Disabling Injury (DI) - a work injury, not a lost time injury, that results in the injured person being unable to fully perform his or her ordinary occupation (regular job) any time after the day or shift on which the injury occurred, and where either alternative or light duties are performed.

This category would include:

- where the injured person is placed in a different occupation/job, whether on full or restricted work hours,
- where the injured person remains in his or her normal occupation/job, but is not able to perform the full range of work duties, and
- where the injured person remains in his or her normal occupation/job, but on restricted hours.



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