SAFETY PERFORMANCE

IN THE WESTERN AUSTRALIAN MINERAL INDUSTRY

ACCIDENT AND INJURY STATISTICS 2007 - 2008

Government of **Western Australia**
Department of **Mines and Petroleum**
Resources Safety

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SUMMARY

Statistics generated from Resources Safety's AXTAT database for the year 2007–08 show a slight but continuing improvement in the overall safety performance of the Western Australian mining industry.

The 66,183 employees in the mining industry in 2007–08 (an increase of 9%) worked a total of 134.04 million hours. Although the number of serious injuries recorded has increased each year since 2003–04, the lost time injury frequency rate (LTIFR) for serious injuries in 2007–08 fell to 2.5, which is an improvement of 14%.

For many years, the focus has been on lost time injuries (LTIs) and how they can be managed more effectively, in terms of both the individual employee's

welfare and the related issue of workers' compensation. Much has been achieved in this regard, and it is to the industry's credit that considerable progress has been made in the areas of early return of employees to operational status, on-the-job post-accident rehabilitation and retraining of personnel.

However, the number of LTIs reported in recent years has become so small that the value of the LTIFR as an indicator of safety performance is questionable, and recorded improvements in the rate are more marginal.

Disabling injury (DI) statistics have been collected since the beginning of fiscal 2001–02. This program was initiated with a view to establishing a more effective safety performance indicator than the current LTI-based system. The coverage of DI statistics was expanded in the annual compilation for 2006–07.

Allegations that LTIs 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 and are more numerous than LTIs. There were 731 disabling injuries (restricted work injuries) recorded for 2007–08, an increase of 26 on the 2006–07 figure of 705. The disabling injury incidence and frequency rates both improved slightly to 11.0 and 5.5, respectively.

Continued effort on the part of all stakeholders is required to maintain the improvements being seen again in the injury performance indicators following a period in which the indicators appeared to have plateaued.

Two mining industry employees lost their lives during the year, two less than the previous year.

Resources Safety continues to regulate the mining industry by statutory inspections, safety management system and high impact function audits. It plays an important role in providing education, training support and information to industry. During the year, safety meetings, presentations to mine site employees, and briefings to industry safety and health representatives complemented the inspection activities.

Resources Safety continues to participate in and assist with the development of the National Mine Safety Framework, an initiative of the Ministerial Council on Mineral and Petroleum Resources.

This publication and previous annual compilations have not reported injury statistics for exploration activities away from mine sites or on exploration leases. However, the *Mines Safety and Inspection Act 1994* was recently amended to clarify provisions that deal with the duties of exploration managers. An exploration manager has duties under the Act, including the requirement to report injuries. The annual compilation for 2008–09 will include injury statistics for the exploration sector.

STATISTICAL SUMMARY

- There were two fatal accidents during 2007–08 — one underground at a nickel mine and one on the surface at a gold mine.
- There were 435 LTIs during 2007–08, 25 less than the previous year (460 injuries in 2006–07). The breakdown of the number of injuries by commodity mined is shown in Table 5 and Appendix A.
- There was an average workforce of 66,183 employees in 2007–08, an increase of 9% over the previous year (60,861 employees in 2006–07). The breakdown of the number of employees by commodity mined is shown in Table 5 and Appendix A.
- The overall LTI duration rate improved slightly by 1% during 2007–08, falling from 20.4 to 20.2. The breakdown of the work days lost for each commodity mined is shown in Table 5 and Appendix A.
- The overall LTIFR improved by 14% during 2007–08, falling from 3.7 to 3.2.
- The overall injury index improved by 13% during 2007–08, down from 75 to 65.
- Serious LTIs in the mining industry during 2007–08 totalled 331, which is 17 less than for 2006–07.
- The overall serious LTIFR improved by 11% during 2007–08, falling from 2.8 to 2.5.
- The iron ore sector LTIFR improved by 10% during 2007–08, falling from 2.0 to 1.8.
- The bauxite and alumina sector LTIFR improved by 7% during 2007–08, falling from 4.1 to 3.8.
- The gold sector LTIFR improved by 26% during 2007–08, falling from 4.3 to 3.2.
- The nickel sector LTIFR improved by 8% during 2007–08, falling from 2.5 to 2.3.
- There were 731 DIs during 2007–08, 26 more than the previous year (705 injuries in 2006–07). The breakdown of the number of injuries by commodity mined is shown in Table 11.
- The overall DI frequency rate improved slightly by 2% during 2007–08, falling from 5.6 to 5.5.

EXPLANATORY NOTES

INTRODUCTION

The statistics published in this annual compilation mainly relate to accidents between 1 July 2007 and 30 June 2008 (2007–08) 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 2007–08 has three components:

i) Initial injuries — days lost in 2007–08 from injuries that occurred in 2007–08

ii) Recurrent injuries — days lost in 2007–08 through recurrences of injuries that occurred in 2007–08 and previous years

iii) Carry-over injuries — days lost in 2007–08 by persons continuously off work from injuries that occurred before 1 July 2007.

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 included in the definition of mining operations, are not covered by this report, nor are oil and gas industry injuries.

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

METALLIFEROUS MINES

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

FATAL ACCIDENTS

Work days lost have not been allocated to fatal accidents, nor have fatalities been included in injury incidence, frequency or duration rate calculations except in Tables 8 and 9, which are in accordance with Australian Standard AS 1885.1:1990 *Workplace Injury and Disease Recording Standard*. This Standard treats fatalities as lost time injuries with a penalty of 220 work days lost for each.

COLLECTION OF INFORMATION

Accident and injury details are reported monthly to Resources Safety by mine managers, as are the number of persons employed (including contractor employees) and hours worked during the month.

During the twelve months covered here, an average of 245 mines or groups of mines reported to the AXTAT system.

DEFINITIONS

LOST TIME INJURY (LTI)
Work injury that results in an absence from work for at least one full day or shift any time after the day or shift on which the injury occurred

SERIOUS INJURY
Lost time injury that results in the injured person being disabled for a period of two weeks or more

DAYS LOST
Rostered days absent from work due to work injury

MINOR INJURY
Lost time injury that results in the injured person being disabled for a period of less than two weeks

DISABLING INJURY (DI)
Work injury (not LTI) that results in 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, regardless of whether or not the person is rostered to work, and where alternative or light duties are performed or hours are restricted

INCIDENCE RATE
Number of lost time injuries per 1000 employees for a 12 month period

FATAL INJURY INCIDENCE RATE
Number of fatal injuries per 1000 employees for a 12 month period

LOST TIME INJURY FREQUENCY RATE (LTIFR)
Number of lost time injuries per million hours worked

SERIOUS INJURY FREQUENCY RATE
Number of serious injuries per million hours worked

DISABLING INJURY FREQUENCY RATE
Number of disabling injuries per million hours worked

DURATION RATE
Average number of workdays lost per injury

INJURY INDEX
Number of workdays lost per million hours worked

METALLIFEROUS MINES
All mines other than coal mines are classed as metalliferous mines

DAYS OFF
Total calendar days, whether rostered or not, absent from work or on alternative duties, restricted duties or restricted hours due to work injury

ABBREVIATIONS

C/BY BETWEEN	–	caught by or between moving or stationary objects or both
C/BY MACHINE	–	caught by or between operating machine
CHEM/FUMES	–	chemicals or fumes
COMP	–	compressed
C/W	–	contact with
DETON	–	detonation
DI	–	disabling injury
ENV	–	environment
EXP	–	exposure
FR	–	frequency rate
JOLT/JAR	–	jolting or jarring
LTI	–	lost time injury
LTIFR	–	lost time injury frequency rate
NOC	–	not otherwise classified
ON/OFF	–	on or off
PRESS	–	pressure
OVER/STREN MOV	–	over-exertion or strenuous movements
S/AGAINST	–	struck against
S/BY	–	struck by
SLIP/TRIP	–	slip or trip
U/G	–	underground
U/G ACCESS/HAUL	–	underground access, travelling or haulage ways
U/G PROD/DEV	–	underground production or development areas
VEH/MOB	–	vehicle or mobile equipment

FATAL ACCIDENTS

FATAL ACCIDENTS DURING 2007–08

There were two fatal accidents in the Western Australian mineral industry during 2007–08:

- A front-end loader (bogger) operator died in an underground nickel mine when the bogger he was operating went over the edge of a stope, and landed on its roof on the stope floor some 15 m below. He was backfilling the stope with cemented rock fill. It appears that there was no bund wall across the drive at the edge of the stope.
- A haul truck driver suffered fatal injuries at a surface gold mine when the loaded haul truck he was driving struck the rear side of a stationary bulldozer after the tyres on the left side of the truck "dug in" as he was turning on a waste dump. He had been driving on a down-grade to the tipping site and was turning the truck before reversing to the dumping position. The bulldozer was at the tipping site to push material and keep the tip-head in good condition.

FATAL INJURY INCIDENCE RATE BY MINERAL MINED 2003–04 TO 2007–08

Table 1 lists fatal injury incidence rates by mineral mined for the past five years, as well as the grouped information for all surface and underground mines.

The underground fatal injury incidence rate is about seven times higher than the fatal injury incidence rate for surface operations. This is reflected in the gold and nickel sectors where most of the State's underground mining occurs.

TABLE 1 Fatal injury incidence rate by mineral mined 2003-04 to 2007-08

Category		Fatalities per thousand employees
Mineral	Iron ore	0.10
	Gold	0.09
	Nickel	0.08
Underground		0.28
Surface		0.04

FATAL ACCIDENTS

CONTINUED

FATAL INJURY INCIDENCE RATE 1998–1999 TO 2007–08

The fatal injury incidence rate for 2007–08 was 0.03 and is still a concern to Resources Safety. Although the overall trend continues to decline, as shown in Figure 1, there is a year-by-year scatter of the incidence rate because of the low number of occurrences.

Resources Safety maintains the view that no fatal accident is acceptable, and a fatal injury incidence rate of zero is achievable and sustainable.

FATAL ACCIDENTS BY TYPE OF ACCIDENT 2003–04 TO 2007–08

Table 2 indicates the type of accidents for the 16 fatalities in the mining industry (excluding exploration) over the past five years, with seven underground and nine at surface operations.

Two of the seven underground fatal accidents were rockfalls.

Three of the nine surface fatal accidents were vehicle or mobile equipment collisions.

FIGURE 1 FATAL INCIDENCE RATE 1998-99 TO 2007-08

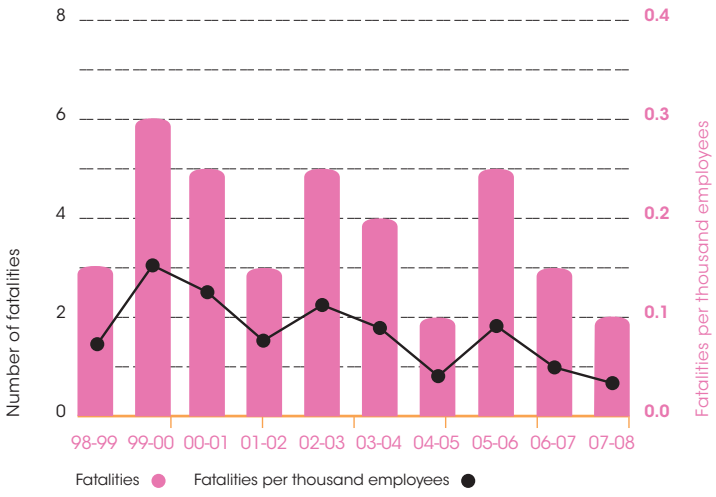


TABLE 2 NUMBER OF FATALITIES 2003–04 TO 2007–08

Category		Number of fatalities
Underground	Rockfall	2
	Veh/mob over edge	1
	Veh/mob collision	1
	Fall from height	1
	Explosives detonation	1
	C/w electricity	1
Surface	Veh/mob collision	3
	C/by machine	1
	S/by object	1
	S/by veh/mob	1
	Fall from height	1
	C/w tool	1
	Contact with flame	1

SERIOUS INJURIES

REVIEW OF SERIOUS INJURIES DURING 2007–08

There were 331 serious injuries reported in the mining industry during 2007–08 (348 in 2006–07). Of these, 324 were in metalliferous mines and seven were in coal mines.

Typical serious injuries are described below.

A process technician, using a crow bar to dislodge a large rock in a jaw crusher, sustained a fractured jaw when the crow bar flicked back and struck him on the side of his head.

A powerhouse operator strained his abdominal muscles opening a large valve.

A haul truck operator sustained a neck strain when the truck he was reversing struck the bucket of an excavator. He had not heard the sound of the excavator's horn, which was his signal to stop.

A haul truck operator fractured his kneecap when he fell after tripping over a loose rock in a wash-down area.

A crusher operator fractured his right arm and right leg when he fell about 5 m from a conveyor to the ground. He had switched on the power after climbing onto the conveyor. The belt started moving, throwing him to the ground. The crusher and conveyor had not been electrically isolated before he climbed onto the belt.

A process plant operator, cleaning a build up of sand from around a conveyor, sustained a fractured hand when it was caught in the head drum of the conveyor. He had inadvertently placed his hand in the head drum.

A construction worker sustained an umbilical hernia while lifting steel mesh weighing about 30 kg.

An agitator truck operator injured his knee underground when he stepped down from the back of his truck onto a slippery rock.

A truck driver, unloading eight 6 m lengths of angle iron from his truck, sustained crush injuries when the lengths of angle iron fell 800 mm onto his hand.

A process plant operator, attempting to prevent a copper cathode falling, sustained lacerations to two fingers of his right hand when the copper cathode slipped and cut through his glove.

A boilermaker, air gouging a sacrificial ring from a crusher mantle and head assembly, sustained burns to his foot when molten slag burnt through his trousers and fell into his boot. The molten slag had splashed onto his trousers after rolling down the mantle onto a locating lug. He was wearing a leather apron.

A process technician fractured his wrist when he attempted to break his fall after tripping over a small rock.

A shift boss, sitting in an underground locomotive battery area 8 m from the face, sustained a compound fracture and severe lacerations to his right arm when he was struck by a falling rock.

An exploration driller's assistant sustained crush injuries to his hand when it was caught between a drill bit and a collar pipe. The assistant was holding the bit in the hammer under the slips table and had signalled the driller to rotate the hammer to screw on the bit. The driller inadvertently activated the fast feed lever instead.

A scraper operator sustained a fractured pelvis when he was caught between a stationary scraper and a reversing grader. The scraper had towed the grader onto solid ground after it became bogged. While the grader was reversing to take tension off the tow chain, the scraper operator entered the area between the two machines.

A haul truck operator jarred his back when he drove forward over large rocks after tipping a load on the ROM pad.

A quarry worker strained his back when he twisted his body while removing a front-end loader's sump plug.

A grader operator, looking for leaks in the top radiator hose of his grader while the engine was running, sustained severe lacerations to the back of his hand when his hand made contact with the revolving radiator fan.

A process plant serviceman strained his back moving mobile scaffolding.

A scraper operator sustained a ruptured shoulder tendon while operating scrapers every shift of a six-shift cycle.

A trades assistant, positioning a belly guard under a bulldozer, sustained a crushed finger when it was caught between the belly guard and the body of the bulldozer.

A fitter, inflating a tyre on a front-end loader underground, sustained bruising to his shoulder and face when he was thrown 2.5 m after the tyre exploded. The tyre had been chained according to the site procedures.

A fitter, replacing a V-belt on a pump, sustained a fractured and lacerated thumb when it was caught between the V-belt and the drive pulley.

A trades assistant, using a grinder to cut a plastic-based sealing material, received lacerations to his thumb

SERIOUS INJURIES CONTINUED

and finger when the cutting disc kicked back after striking the concrete curbing behind the sealing material.

A fitter, using an air grinding tool to remove carbon deposit build up from an engine cylinder head, sustained burns to his arms and legs when sparks generated from the grinding tool ignited cleaning solvent that had spilt onto his shirt and trousers. He had been cleaning the cylinder head with the solvent before he commenced grinding.

An underground manager sustained an inguinal hernia while lifting a drill jumbo cable from an L-pin at head height.

A process plant operator, checking the chain links on a bucket elevator, sustained a fractured thumb when it was caught between a V-belt and pulley.

A drill jumbo operator, changing bits on the drill jumbo at an underground development face, received head and neck injuries when he was struck by a rock that fell from the face.

A survey assistant, walking across blasted material while marking up ore blocks on an open pit bench, sustained multiple crush injuries when the ground on which she was working collapsed into a blast void and blasted material rilled into the void, burying her up to chest level.

An underground miner, plugging in a drill jumbo cable, sustained a compound fracture to his leg when an adjacent air pipe coupling blew off under pressure and struck his leg.

A haul truck operator sustained bruising to his back, neck and arms when he slipped and fell to the ground while climbing down the ladder of a haul truck. The ladder on the truck was wet as it had been raining prior to the accident.

An equipment truck operator, driving an elevating work platform off a flatbed truck, sustained a fractured jaw and lacerations when his face struck the control panel. He had lost control of the platform while it was proceeding down the ramps and was thrown about.

A dump truck operator sustained a compound fracture to his lower leg when he slipped in a patch of clay-like material while walking in an underground drive.

A front-end loader operator, checking the water level on his loader, strained his back when he slipped from the loader's chain-step and fell to the ground.

A driller's assistant suffered heat stroke while working in a lay-down yard. He experienced stomach cramps, dizziness and was unable to stand.

A refinery operator sustained chronic tendon damage to both elbows from heavy manual labour and using impact tools over a period of time.

A boilermaker, helping to install a feeder vibrator at a crushing plant, sustained multiple injuries when he fell 4 m from a platform to the ground after the fibre lifting sling that was holding the vibrator failed and struck him causing him to fall.

A charge-up operator, lowering a man-cage in which he was standing after charging a development face underground, sustained crush injuries to his fingers when they were caught between the man-cage and a protruding rock bolt.

SERIOUS INJURY INCIDENCE RATE BY MINERAL MINED 2003–04 TO 2007–08

Figure 2 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. The lower part shows serious injury incidence rates by mineral mined.

The chart shows that the serious injury incidence rate for underground mining (10.2) was almost twice that for surface operations (5.4).

Of the major mining sectors, coal had the highest five-year average serious injury incidence rate (12.7) whereas iron ore had the lowest (3.6). The mining sector referred to as 'other', with a five-year average serious injury incidence rate of 12.4, contained 3% of the total number of employees spread over 16 commodity groups. Most of the mine sites in this sector had less than 50 employees.

SERIOUS INJURY FREQUENCY RATE 2003–04 TO 2007–08

Figure 3 shows that the serious injury frequency rate decreased for underground metalliferous operations, surface metalliferous operations and the coal sector, resulting in a 11% improvement overall during 2007–08.

SERIOUS INJURY PERCENTAGE BREAKDOWN FOR 2007–08

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.

FIGURE 2 SERIOUS INJURY INCIDENCE RATE 2003-04 TO 2007-08

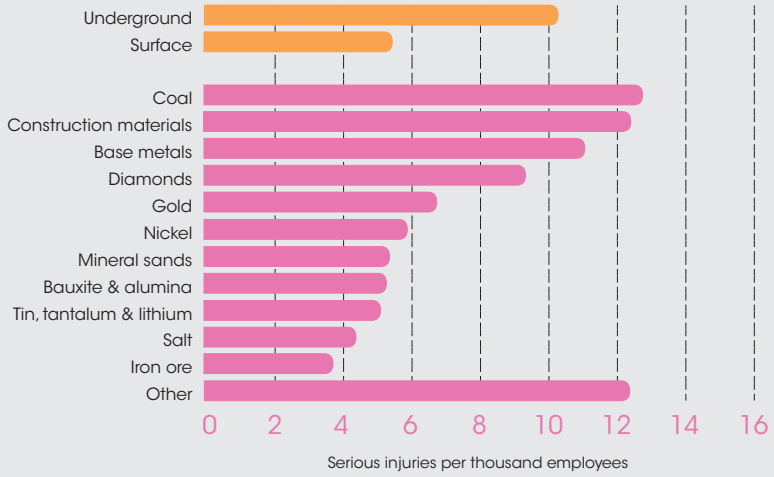
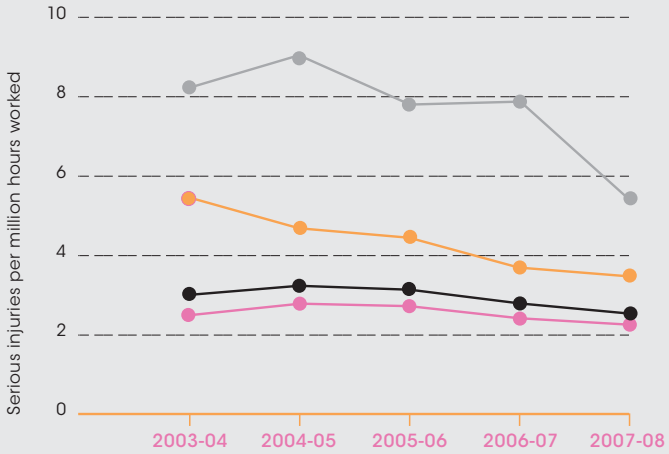


FIGURE 3 SERIOUS INJURY FREQUENCY RATE 2003-04 TO 2007-08



	2003-04	2004-05	2005-06	2006-07	2007-08
Metalliferous u/g	5.4	4.7	4.4	3.8	3.6
Metalliferous surface	2.6	2.9	2.9	2.6	2.3
Coal	8.3	9.0	7.9	7.9	5.5
Total	3.0	3.2	3.1	2.8	2.5

Underground

- Injuries to legs accounted for the largest proportion of serious injuries at 19%, hand injuries accounted for 18%, followed by back injuries at 15%. Of the serious leg injuries, 67% were to knees and ankles.
- Consistent with the high proportion of knee, ankle, and back injuries, sprain or strain represented the highest proportion by nature of injury (35%), followed by fracture at 15% then multiple at 11%.
- The largest proportion of serious injuries underground was in production and development areas (61%), followed by access and haulage ways at 23% then dumping areas (6%).
- The most common accident type associated with serious injuries underground was over-exertion or strenuous movements (29%), followed by rockfall and caught by machine both at 13%, and struck by object at 11%.

Surface

- Injuries to arms accounted for the largest proportion of serious injuries at 22%, back and hand injuries accounted for 19% each, followed by injuries to legs at 16%. Of the serious arm injuries, 79% were to shoulders, elbows and wrists. Of the serious leg injuries, 79% were to knees and ankles.
- Consistent with the high proportion of shoulder, elbow, wrist, knee, ankle and back injuries, sprain or strain represented the highest proportion by nature of injury (46%). Fracture was the next highest (17%), followed by laceration at 7%.
- The largest proportion of serious injuries on the surface occurred in treatment plants (39%), followed by open pits at 19% then workshops at 15%.
- The most common accident types associated with serious injuries on the surface were over-exertion or strenuous movements (32%), caught by or between moving objects (11%), and slip or trip (9%).

LOST TIME INJURIES

REVIEW OF LOST TIME INJURIES DURING 2007–08

In 2007–08, 19,365 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 2007–08 (8,768), recurrences of injuries sustained before 2007–08 and in 2007–08 (1,215), and LTIs and recurrences carried over into 2007–08 from accidents before July 2007 (9,382). A breakdown of work days lost in coal and metalliferous mining is given in Table 3.

During 2007–08, there were 435 LTIs in the State's mining industry. Of those, 422 were in metalliferous mines and 13 in coal mines. A breakdown of these data with performance indicators is given in Tables 4 and 5.

In addition to the initial injuries, there were 53 recurrences of previous injuries, resulting in 1,215 work days lost during 2007–08. A breakdown of recurrent injuries by calendar year of initial injury is given in Table 6.

One hundred and eighteen persons who were still off work from injuries received before July 2007 lost 9,382 work days in 2007–08. A breakdown of these carry-over injuries is given in Table 7.

TABLE 3 TIME LOST THROUGH INJURY DURING 2007-08

Mines	No. of initial injuries	No. of recurrent injuries	No. of carry-over injuries	Total injuries
	Days lost			
Metalliferous	8,606	1,032	9,275	18,913
Coal	162	183	107	452
Total mining	**8,768**	**1,215**	**9,382**	**19,365**

TABLE 4 INITIAL LOST TIME INJURIES DURING 2007-08

Mines	No. of employees	No. of LTIs	Incidence	Frequency	Duration	Injury index	Days lost
Metalliferous surface	57,884	344	5.9	3.0	21.2	63	7,277
Metalliferous underground	7,439	78	10.5	4.5	17.0	77	1,329
Melalliferous total	65,323	422	6.5	3.2	20.4	65	8,606
Coal total	860	13	15.1	10.2	12.5	128	162
Total mining	**66,183**	**435**	**6.6**	**3.2**	**20.2**	**65**	**8,768**

TABLE 5 INJURIES BY MINERAL MINED DURING 2007-08

Mineral mined	No. of employees	No. of LTIs	Incidence	Frequency	Duration	Injury index	Days lost
Iron ore	18,926	69	3.6	1.8	16.9	30	1,163
Gold	14,043	95	6.8	3.2	26.7	85	2,532
Nickel	13,030	59	4.5	2.3	18.4	42	1,083
Bauxite and alumina	8,268	60	7.3	3.8	17.3	66	1,037
Mineral sands	2,696	18	6.7	3.8	30.4	116	547
Base metals	2,383	41	17.2	8.2	23.9	195	981
Diamonds	2,091	16	7.7	3.1	13.6	42	217
Coal	860	13	15.1	10.2	12.5	128	162
Salt	843	8	9.5	5.8	14.4	83	115
Construction materials	575	10	17.4	8.2	23.7	194	237
Tin, tantalum and lithium	464	4	8.6	3.6	11.5	41	46
Other	2,004	42	21.0	11.5	15.4	178	648
Total mining	**66,183**	**435**	**6.6**	**3.2**	**20.2**	**65**	**8,768**

NOTE: Duration in Tables 4 and 5 does not take into consideration time lost after 30 June 2008 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 2007.

TABLE 6 RECURRENT INJURIES DURING 2007-08

Calendar year	Metalliferous mines		Coal mines		Total mining	
	No. of injuries	Days lost	No. of injuries	Days lost	No. of injuries	Days lost
2008*	2	48	1	7	3	55
2007	24	610	4	71	28	681
2006	11	232	1	42	12	274
2005	2	11	—	—	2	11
2004	3	60	—	—	3	60
2003	1	12	—	—	1	12
Pre-2003	3	59	1	63	4	122
Total	**46**	**1,032**	**7**	**183**	**53**	**1,215**

NOTE: Apart from the information shown in Tables 3, 6 and 7, analysis of recurrent and carry-over injuries has not been presented in this publication.

* Covers period from 1 January to 30 June 2008

LOST TIME INJURIES CONTINUED

TABLE 7 CARRY-OVER INJURIES DURING 2007-08

Calendar year	Metalliferous mines		Coal mines		Total mining	
	No. of injuries	Days lost	No. of injuries	Days lost	No. of injuries	Days lost
2007*	58	3,074	3	79	61	3,153
2006	37	3,509	1	28	38	3,537
2005	9	954	—	—	9	954
2004	7	1,213	—	—	7	1,213
2003	3	525	—	—	3	525
Pre-2003	—	—	—	—	—	—
Total	**114**	**9,275**	**4**	**107**	**118**	**9,382**

* Covers period from 1 January to 30 June 2007

REVIEW OF LOST TIME INJURIES DURING 2007–08 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. The Australian Standard (AS 1885.1:1990 *Workplace Injury and Disease Recording Standard*) is designed to be used by individual workplaces. Tables 8 and 9 provide statistical information in accordance with AS 1885.1:1990.

There are two major differences between reporting for AS 1885.1:1990 and the AXTAT database.

The Australian Standard treats fatalities as LTIs with a penalty of 220 workdays lost for each, whereas in the AXTAT database fatalities are reported separately from other injury data.

The incidence rate reported in accordance with the Australian Standard definition is injuries per hundred employees, rather than injuries per thousand employees.

TABLE 8 INITIAL LOST TIME INJURIES DURING 2007-08 (AS 1885.1:1990)

Mines	No. of employees	No. of LTIs	Injuries per hundred	Frequency	Duration	Days lost
Metalliferous surface	57,884	345	0.6	3.0	21.7	7,497
Metalliferous underground	7,439	79	1.1	4.6	19.6	1,549
Metalliferous total	65,323	424	0.6	3.2	21.3	9,046
Coal total	860	13	1.5	10.2	12.5	162
Total mining	**66,183**	**437**	**0.7**	**3.3**	**21.1**	**9,208**

NOTE: Duration in Tables 8 and 9 does not take into consideration time lost after 30 June 2008 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 2007.

TABLE 9 INJURIES BY MINERAL MINED DURING 2007-08 (AS 1885.1:1990)

Mineral mined	No. of employees	No. of LTIs	Injuries per hundred	Frequency	Duration	Days lost
Iron ore	18,926	69	0.4	1.8	16.9	1,163
Gold	14,043	96	0.7	3.2	28.7	2,752
Nickel	13,030	60	0.5	2.3	21.7	1,303
Bauxite and alumina	8,268	60	0.7	3.8	17.3	1,037
Mineral sands	2,696	18	0.7	3.8	30.4	547
Base metals	2,383	41	1.7	8.2	23.9	981
Diamonds	2,091	16	0.8	3.1	13.6	217
Coal	860	13	1.5	10.2	12.5	128
Salt	843	8	0.9	5.8	14.4	115
Construction materials	575	10	1.7	8.2	23.7	237
Tin, tantalum and lithium	464	4	0.9	3.6	11.5	46
Other	2,004	42	2.1	11.5	15.4	648
Total mining	**66,183**	**437**	**0.7**	**3.3**	**21.1**	**9,208**

WORKERS' COMPENSATION

PREMIUM RATES FOR THE WESTERN AUSTRALIAN MINERAL INDUSTRY

The workers' compensation recommended 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 4 indicates trends in workers' compensation costs for selected mineral groups in the ten-year period since 1999–2000.

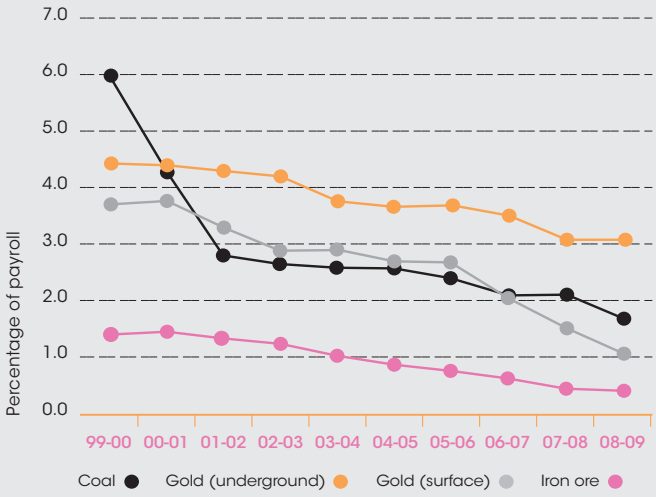
Over this period, the coal mining compensation rate decreased, by 71%, to 1.70% of payroll. The compensation rate for surface gold operations decreased, by 73%, to 1.02% of payroll, and that for iron ore operations deceased, by 70%, to 0.42% of payroll. The rate for underground gold operations decreased, by 31%, to 3.02% of payroll.

The average recommended premium rate for the Western Australian mining industry for 2008–09 is currently 1.42% of payroll, a 13% reduction on that for 2007–08 (1.63% of payroll).

Figure 5 shows the current recommended premium rates for 2008–09 for a variety of mineral groups and other industries.

Premium rates for mining industry groups compare favourably with other industry groups such as sheet metal product manufacturing and structural steel fabrication,

FIGURE 4 MINE WORKERS' COMPENSATION RATE TRENDS 1999-00 TO 2008-09

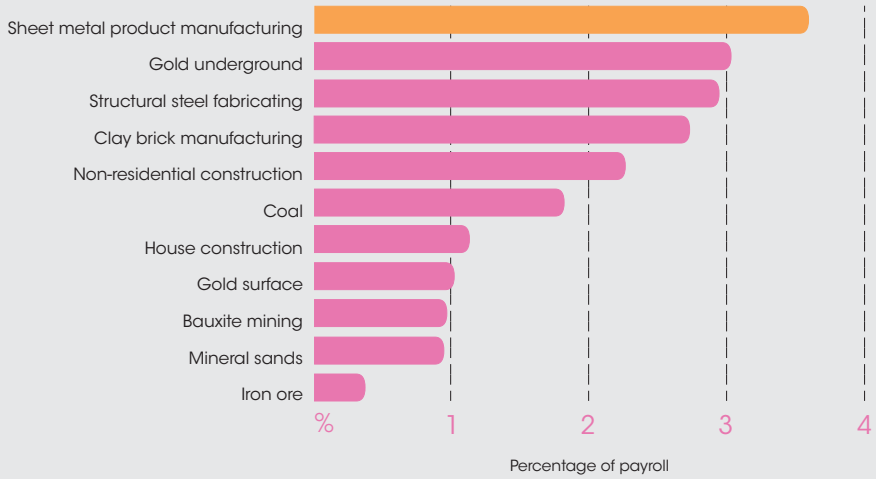


which have current premium rates of 3.57% and 2.91% of payroll, respectively.

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 safety performance.

FIGURE 5 RECOMMENDED PREMIUM RATES 2008-09



INJURIES BY COMMODITIES

METALLIFEROUS PERFORMANCE INDICATORS

The performance indicators for the metalliferous mining sector show mixed results for 2007–08. Figures 6 to 9 depict the performance indicators of incidence, frequency, duration rates and injury index (see page 3 for definitions).

Some interesting trends noted in the performance indicators for metalliferous mines during 2007–08 include the following.

- The overall incidence rate improved by 13%, falling from 7.5 to 6.5. The surface incidence rate improved by 17% (from 7.1 to 5.9) whereas the underground incidence rate remained the same at 10.5.
- The overall frequency rate improved by 11%, falling from 3.6 to 3.2. The surface frequency rate improved by 14% (from 3.5 to 3.0) whereas the underground frequency rate deteriorated slightly by 2% (from 4.4 to 4.5).
- The overall duration rate improved slightly by less than 1%, falling to 20.4. The surface duration rate deteriorated by 10% (from 19.2 to 21.2) whereas the underground duration rate improved significantly by 40% (from 28.1 to 17.0).
- The fall in both frequency rate and duration rate resulted in an overall improvement of 12% to the injury index, down from 74 to 65. The surface injury index improved by 6% (from 67 to 63) and the underground injury index improved significantly by 38% (from 124 to 77).

METALLIFEROUS INJURY PERCENTAGE BREAKDOWN FOR 2007–08

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 and hand injuries, both at 18%, accounted for the largest proportion of underground injuries Back injuries accounted for the largest proportion of surface injuries at 20%. Of the underground leg injuries, 64% were to knees and ankles.
- Back injuries accounted for the next largest proportion of injuries underground at 14%, followed by trunk not otherwise classified injuries at 13%.
- Hand and arm injuries, both at 19%, accounted for the second largest proportion of surface injuries, followed by leg injuries at 18%. Of the arm injuries, 80% were to shoulders, elbows and wrists. Of the leg injuries, 74% were to knees and ankles.

Injuries by nature

- Sprain or strain was the highest ranking nature of injury for both underground and surface injuries at 32% and 45%, respectively.
- The second highest ranking nature of underground injury was fracture (13%), followed by laceration at 12%.
- The second highest ranking nature of surface injury was also fracture (15%), followed by laceration at 8%.

Injuries by location

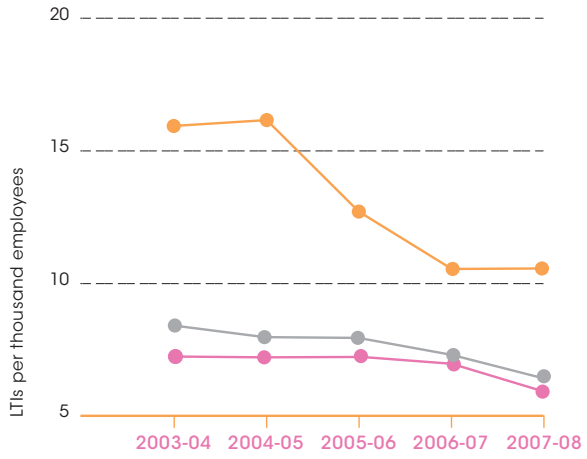
- The largest proportion of underground injuries occurred in production and development areas (62%), followed by access and haulage ways at 24% then dumping areas at 5%.
- The largest proportion of surface injuries occurred in treatment plants (38%), followed by open pits at 20% then workshops at 15%.

Injuries by type of accident

- Over-exertion or strenuous movements was the most common accident type for underground injuries at 26%, followed by caught by machine, rockfall and slip or trip, each at 10%, then struck by object at 9%.
- The most common accident type for surface injuries was also over-exertion or strenuous movements at 31%, followed by caught by or between moving objects at 10%, then struck by object and slip or trip, both at 8%.

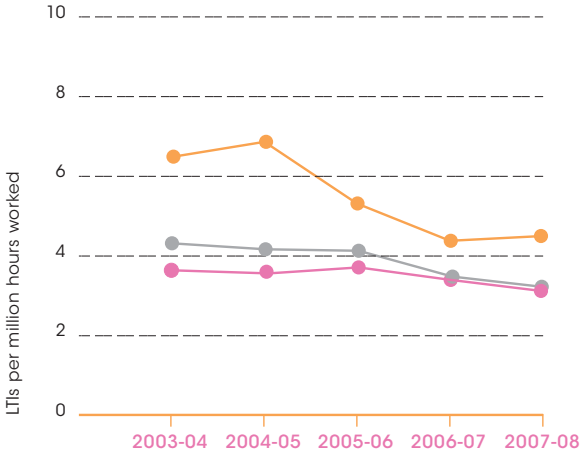
METALLIFEROUS PERFORMANCE INDICATORS 2003–04 TO 2007–08

FIGURE 6 INCIDENCE RATE



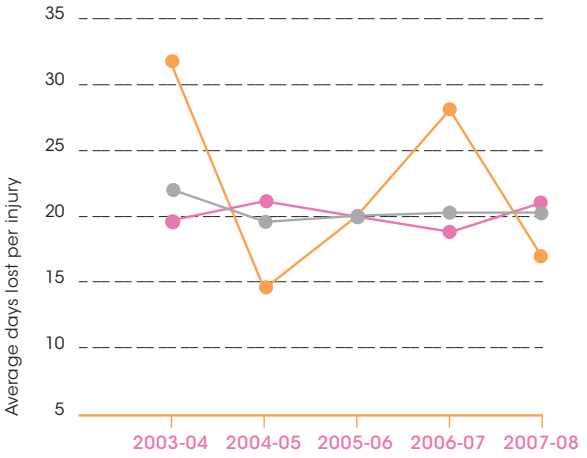
	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	16.0	16.2	12.6	10.5	10.5
Surface	7.6	7.3	7.6	7.1	5.9
Total	8.4	8.1	8.1	7.5	6.5

FIGURE 7 FREQUENCY RATE



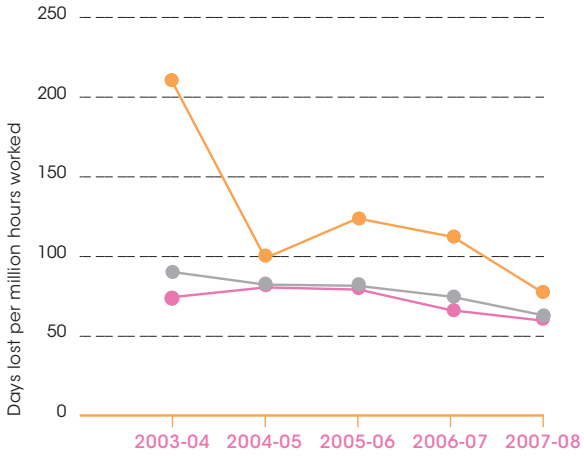
	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	6.6	6.9	5.4	4.4	4.5
Surface	3.8	3.8	3.9	3.5	3.0
Total	4.2	4.1	4.1	3.6	3.2

FIGURE 8 DURATION RATE



	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	31.9	14.4	20.4	28.1	17.0
Surface	19.7	21.1	20.1	19.2	21.2
Total	21.9	19.8	20.2	20.5	20.4

FIGURE 9 INJURY INDEX



	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	211	99	111	124	77
Surface	75	80	79	67	63
Total	91	82	82	74	65

INJURIES BY COMMODITIES CONTINUED

GOLD PERFORMANCE INDICATORS

The performance indicators for the gold sector showed mixed results for 2007–08. Figures 10 to 13 depict the performance indicators of incidence, frequency and duration rates, and injury index.

Some interesting trends noted in the gold sector performance indicators during 2007–08 include the following.

- The overall incidence rate improved by 23%, falling from 8.8 to 6.8. The surface incidence rate improved by 31% (from 8.3 to 5.7) and the underground incidence rate improved slightly by 1% (from 10.3 to 10.2).
- The overall frequency rate improved by 26%, falling from 4.3 to 3.2. The surface frequency rate improved significantly by 35% (from 4.3 to 2.8) whereas the underground frequency rate remained the same at 4.4.
- The overall duration rate deteriorated by 15%, rising to 26.7. The surface duration rate deteriorated significantly by 60% (from 19.4 to 31.0) whereas the underground duration rate improved significantly by 43% (from 33.1 to 18.9). The large increase in the surface duration rate was mainly the result of four serious LTIs, each with over 100 days lost, accumulating a total of 473 days lost time during 2007–08.
- The fall in frequency rate was greater than the rise in duration rate and resulted in a 15% overall improvement in the injury index, falling from 100 to 85. The surface injury index deteriorated by 4% (from 83 to 86) whereas the underground injury index improved significantly by 42% (from 144 to 83).

GOLD INJURY PERCENTAGE BREAKDOWN FOR 2007–08

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

- Leg, hand and trunk not otherwise classified injuries, each at 18%, accounted equally for the largest proportion of underground injuries. Of the underground leg injuries, 50% were to knees and ankles. Hand injuries accounted for the largest proportion of surface injuries at 21%.
- Arm injuries accounted for the next largest proportion of injuries underground at 15%, followed by back injuries at 12%. Of the arm injuries, 60% were to shoulders and elbows.
- Back and leg injuries, both at 20%, accounted for the second largest proportion of surface injuries, followed by arm injuries at 13%. Of the leg injuries, 100% were to knees and ankles. Of the arm injuries, 63% were to shoulders and wrists.

Injuries by nature

- Sprain or strain was the highest ranking nature of injury for both underground and surface injuries at 32% and 38%, respectively.
- The second highest ranking nature of underground injury was fracture and laceration, both at 15%, followed by bruise or contusion, crushing and multiple injuries, each at 9%.
- The second highest ranking nature of surface injury was fracture at 20%, followed by crushing at 8%.

Injuries by location

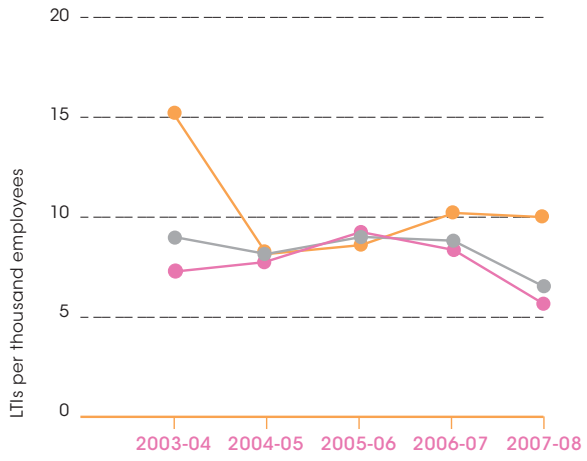
- The largest proportion of underground injuries occurred in production and development (74%), followed by access and haulage ways at 18% then dumping areas, pump chambers and underground areas not otherwise classified, each at 3%.
- The largest proportion of surface injuries occurred in open pits (33%), followed by treatment plants at 25% then workshops at 21%.

Injuries by type of accident

- Over-exertion or strenuous movements was the most common accident type for underground injuries at 29%, followed by rockfall at 15% then caught by or between operating machine and slip or trip, both at 9%.
- The most common accident type for surface injuries was also over-exertion or strenuous movements at 15%, followed by slip or trip at 13% then caught by or between moving objects and vehicle or mobile equipment jolting or jarring, both at 11%.

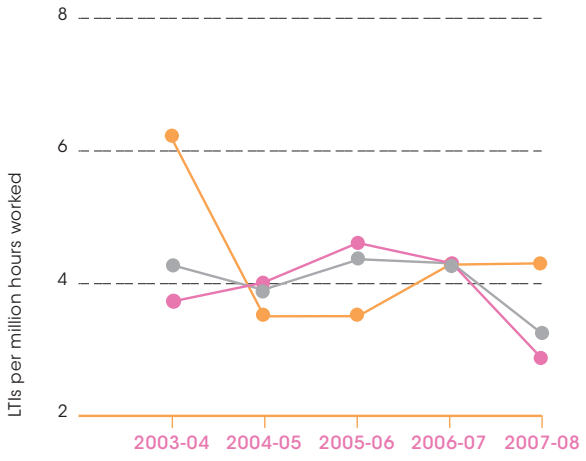
GOLD PERFORMANCE INDICATORS 2003–04 TO 2007–08

FIGURE 10 INCIDENCE RATE



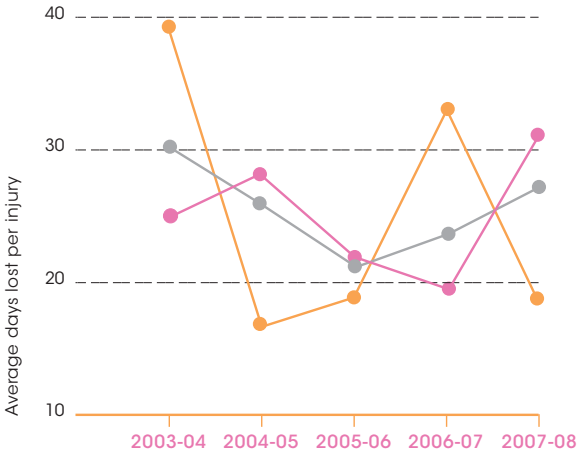
	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	15.1	8.1	8.5	10.3	10.2
Surface	7.3	8.0	9.2	8.3	5.7
Total	9.0	8.0	9.0	8.8	6.8

FIGURE 11 FREQUENCY RATE



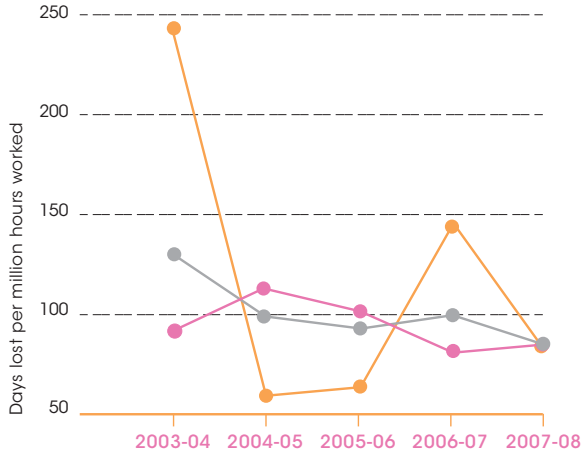
	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	6.2	3.5	3.5	4.4	4.4
Surface	3.7	4.0	4.8	4.3	2.8
Total	4.3	3.9	4.4	4.3	3.2

FIGURE 12 DURATION RATE



	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	39.6	16.5	19.3	33.1	18.9
Surface	24.9	28.0	21.5	19.4	31.0
Total	30.1	25.4	21.0	23.2	26.7

FIGURE 13 INJURY INDEX



	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	244	57	68	144	83
Surface	92	113	102	83	86
Total	129	98	93	100	85

INJURIES BY COMMODITIES CONTINUED

IRON ORE PERFORMANCE INDICATORS

The performance indicators for the iron ore sector showed an improvement for 2007–08. Figures 14 to 17 depict the performance indicators of incidence, frequency and duration rates, and injury index.

Some interesting trends noted in the iron ore sector performance indicators during 2007–08 include the following.

- The incidence rate improved by 20%, falling from 4.5 to 3.6.
- The frequency rate improved by 10%, falling from 2.0 to 1.8.
- The duration rate improved by 29%, falling from 23.7 to 16.9.
- The fall in both duration rate and frequency rate resulted in a significant improvement of 38% in injury index (from 48 to 30).

IRON ORE INJURY PERCENTAGE BREAKDOWN FOR 2007–08

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

- Arm and leg injuries, both at 20%, accounted for the largest proportion of injuries. Of the arm injuries, 79% were to shoulders, elbows and wrists. Of the leg injuries, 71% were to knees and ankles.
- Back injuries accounted for the next largest proportion of injuries at 19%, followed by trunk not otherwise classified injuries at 10%.

Injuries by nature

- Sprain or strain was the highest ranking nature of injury at 45%.
- Fracture was the second highest ranking nature of injury at 13%, followed by pain at 12%.

Injuries by location

- The largest proportion of injuries occurred in workshops, which accounted for 25%.
- The next largest proportion occurred in treatment plants at 19%, followed by open pits at 17%.

Injuries by type of accident

- Over-exertion or strenuous movements was the most common type of accident resulting in injury (33%).
- Slip or trip was the second most common type (9%), followed by caught by or between moving objects, struck by object, stepping and vehicle or mobile equipment jolting or jarring, each at 7%.

IRON ORE PERFORMANCE INDICATORS 2003–04 TO 2007–08

FIGURE 14 INCIDENCE RATE

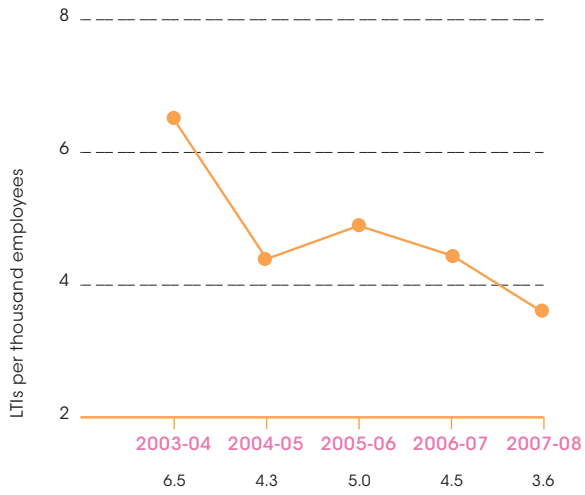


FIGURE 15 FREQUENCY RATE

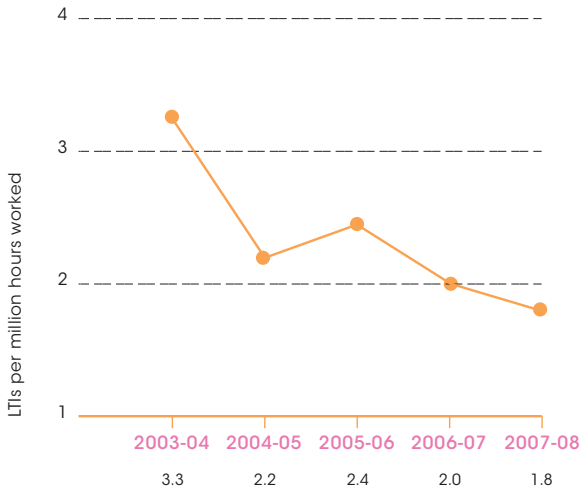


FIGURE 16 DURATION RATE

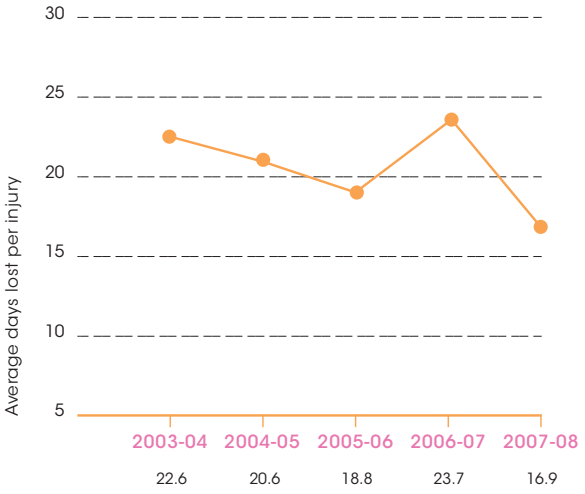
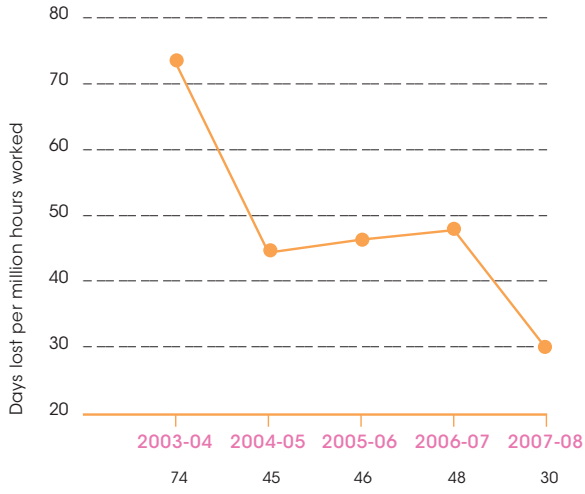


FIGURE 17 INJURY INDEX



INJURIES BY COMMODITIES CONTINUED

BAUXITE AND ALUMINA PERFORMANCE INDICATORS

The performance indicators for the bauxite and alumina sector showed mixed results for 2007–08. Figures 18 to 21 depict the performance indicators of incidence, frequency and duration rates, and injury index.

Some interesting trends noted in the bauxite and alumina sector performance indicators during 2007–08 include the following.

- The incidence rate improved by 5%, falling from 7.7 to 7.3.
- The frequency rate improved by 7%, falling from 4.1 to 3.8.
- The duration rate deteriorated by 9%, rising from 15.9 to 17.3.
- The rise in duration rate was greater than the fall in frequency rate and resulted in a slight deterioration of 2% for the injury index, up from 65 to 66.

BAUXITE AND ALUMINA INJURY PERCENTAGE BREAKDOWN FOR 2007–08

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

- Arm injuries accounted for the largest proportion of injuries at 25%. Of the arm injuries, 87% were to shoulders, elbows and wrists.
- Back injuries accounted for the second largest proportion of injuries at 23%, followed by hand injuries at 20%.

Injuries by nature

- Sprain or strain was the highest ranking nature of injury at 57%.
- Laceration was the second highest ranking nature of injury at 15%, followed by effects of chemicals or fumes at 10%.

Injuries by location

- The largest proportion of injuries occurred in treatment plants, which accounted for 60%.
- The next largest proportion occurred in open pits at 13%, followed by workshops at 8%.

Injuries by type of accident

- Over-exertion or strenuous movements was the most common type of accident resulting in injury (47%).
- Contact with chemicals or fumes was the second most common type (10%), followed by caught by or between moving objects and struck by object, both at 7%.

BAUXITE AND ALUMINA PERFORMANCE INDICATORS 2003–04 TO 2007–08

FIGURE 18 INCIDENCE RATE

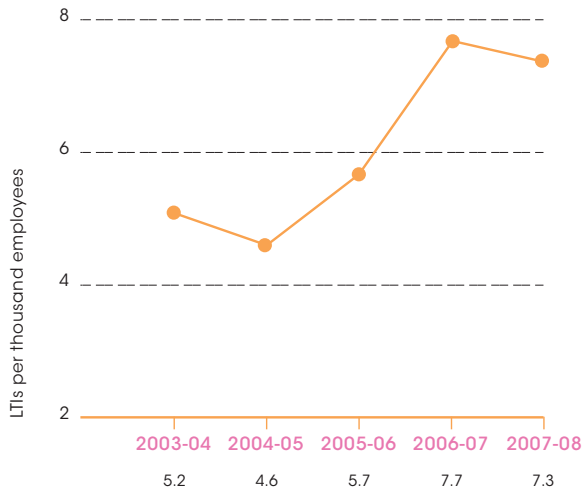


FIGURE 19 FREQUENCY RATE

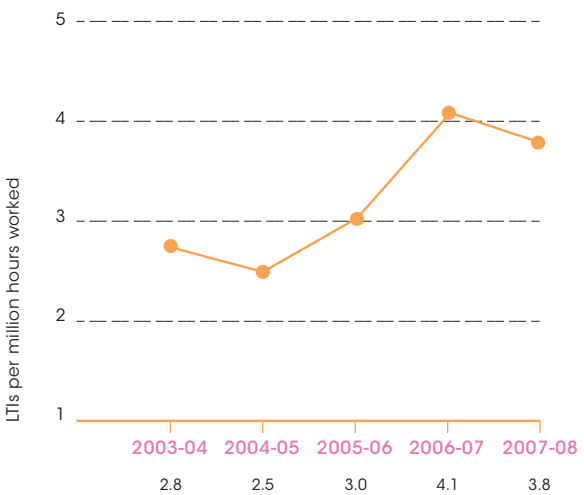


FIGURE 20 DURATION RATE

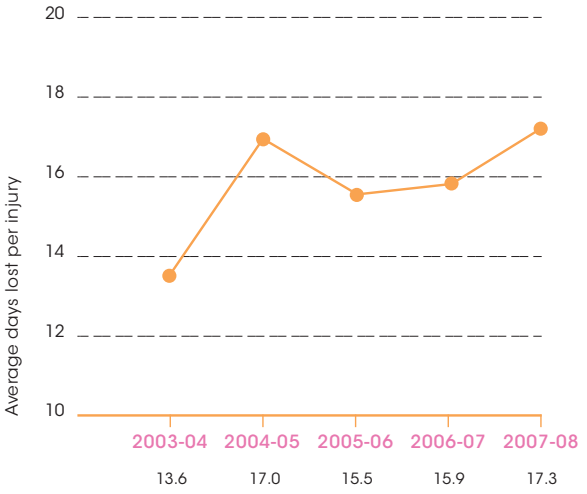
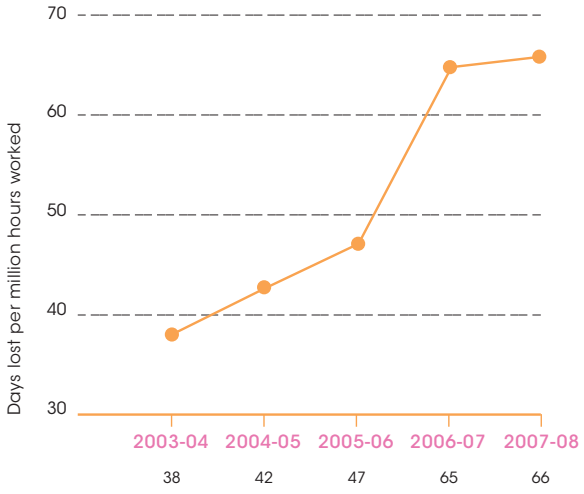


FIGURE 21 INJURY INDEX



INJURIES BY COMMODITIES CONTINUED

NICKEL PERFORMANCE INDICATORS

The performance indicators for the nickel sector showed mixed results for 2007–08. Figures 22 to 25 depict the performance indicators of incidence, frequency and duration rates, and injury index.

Some interesting trends noted in the nickel sector performance indicators during 2007–08 include the following.

- The overall incidence rate improved by 12%, falling from 5.1 to 4.5. The surface incidence rate improved by 14% (from 4.2 to 3.6) and the underground incidence rate also improved by 14% (from 9.5 to 8.2).
- A similar trend was noted in the frequency rate for both surface and underground. The overall frequency rate improved by 8%, falling from 2.5 to 2.3. The surface frequency rate improved by 10% (from 2.1 to 1.9) and the underground frequency rate also improved by 10% (from 4.1 to 3.7).
- The overall duration rate improved by 5%, falling to 18.4. The surface duration rate deteriorated by 22% (from 18.4 to 22.4) whereas the underground duration rate improved significantly by 48% (from 21.1 to 11.0).
- The fall in both frequency rate and duration rate resulted in an overall improvement of 13% in the injury index, falling from 48 to 42. The surface injury index deteriorated by 13% (from 38 to 43) whereas the underground injury index improved significantly by 54% (from 87 to 40).

NICKEL INJURY PERCENTAGE BREAKDOWN FOR 2007–08

Appendices J and K 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

- Hand injuries accounted for the largest proportion of underground injuries at 19%. Leg injuries accounted for the largest proportion of surface injuries at 26%. Of the surface leg injuries, 70% were to knees and ankles.
- Arm injuries, leg injuries and neck injuries, each at 14%, accounted for the second largest proportion of injuries underground, followed by back injuries, multiple injuries and trunk not otherwise classified injuries, each at 10%. Of the underground arm injuries, 100% were to shoulders. Of the underground leg injuries, 100% were to knees and ankles.
- Hand injuries accounted for the second largest proportion of surface injuries at 21%, followed by back injuries at 18%.

Injuries by nature

- Sprain or strain was the highest ranking nature of injury for both underground and surface injuries at 33% and 45%, respectively.
- The second highest ranking nature of underground injury was bruise or contusion, jarring and laceration, each at 14%, followed by crushing and multiple injuries, both at 10%.
- The second highest ranking nature of surface injury was fracture at 16%, followed by crushing at 11%.

Injuries by location

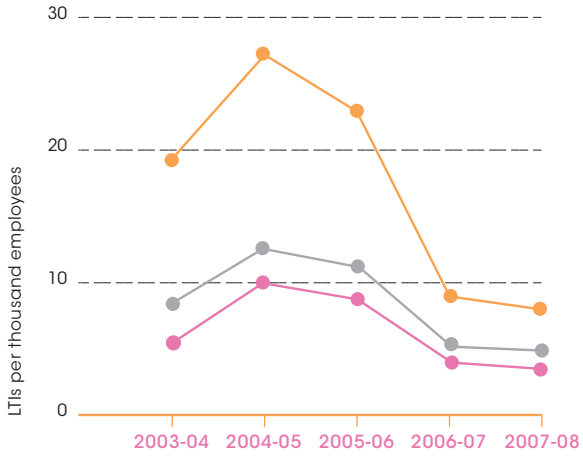
- The largest proportion of underground injuries occurred in production and development areas (52%), followed by access and haulage ways at 33% then dumping areas, underground not otherwise classified areas and workshops, each at 5%.
- The largest proportion of surface injuries occurred in treatment plants (42%), followed by surface general areas at 18% then administration areas and open pits, both at 13%.

Injuries by type of accident

- Over-exertion or strenuous movements was the most common accident type for underground injuries at 19%, followed by struck by object, caught by or between operating machine and slip or trip, each at 16%, then caught by or between moving or stationary objects and struck against object, both at 10%.
- The most common accident type for surface injuries was over-exertion or strenuous movements at 32%, followed by struck by object at 16% then stepping at 11%.

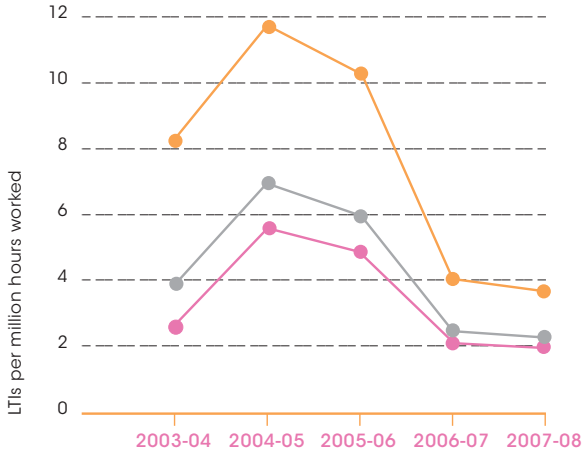
NICKEL PERFORMANCE INDICATORS 2003–04 TO 2007–08

FIGURE 22 INCIDENCE RATE



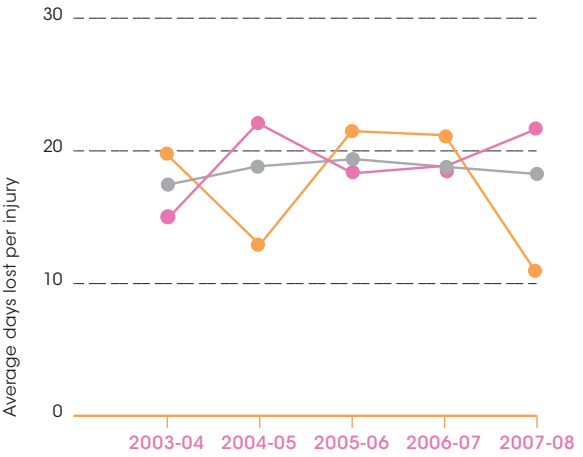
	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	19.4	26.7	23.2	9.5	8.2
Surface	5.5	10.0	9.0	4.2	3.6
Total	8.3	13.0	11.5	5.1	4.5

FIGURE 23 FREQUENCY RATE



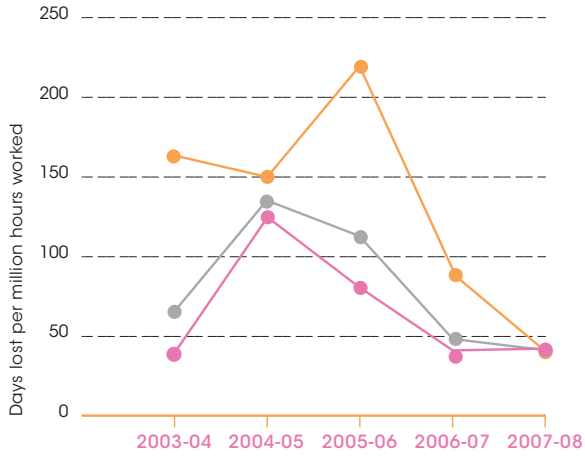
	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	8.3	11.7	10.2	4.1	3.7
Surface	2.7	5.6	4.8	2.1	1.9
Total	3.9	7.0	5.9	2.5	2.3

FIGURE 24 DURATION RATE



	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	19.8	13.0	21.8	21.1	11.0
Surface	14.2	22.6	18.3	18.4	22.4
Total	16.8	19.0	19.5	19.3	18.4

FIGURE 25 INJURY INDEX



	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	165	152	222	87	40
Surface	38	126	88	38	43
Total	66	132	116	48	42

DISABLING INJURIES

REVIEW OF DISABLING INJURIES DURING 2007–08

In addition to the 435 LTIs during 2007–08, there were 731 disabling injuries (DIs) reported (717 in metalliferous mines and 14 in coal mines), bringing the total number of reportable injuries to 1,166. A breakdown of these data with performance indicators is shown in Tables 10 and 11.

Of the disabling injuries, 432 resulted in the injured person being disabled for two weeks or more.

TABLE 10 DISABLING INJURIES 2007–08

Mines	No. of employees	Disabling injuries			Reportable injuries (DIs and LTIs)		
		No. of injuries	Incidence	Frequency	No. of injuries	Incidence	Frequency
Metalliferous surface	57,884	512	8.8	4.4	856	14.8	7.4
Metalliferous underground	7,439	205	27.6	11.9	283	38.0	16.4
Melalliferous total	65,323	717	11.0	5.4	1,139	17.4	8.6
Coal total	860	14	16.3	11.0	27	31.4	21.3
Total mining	**66,183**	**731**	**11.0**	**5.5**	**1,166**	**17.6**	**8.7**

TABLE 11 DISABLING INJURIES 2007–08

Mineral mined	No. of employees	No. of injuries	Incidence	Frequency	No. of injuries	Incidence	Frequency
		Disabling injuries			Reportable injuries (DIs and LTIs)		
Iron ore	18,926	106	5.6	2.7	175	9.2	4.5
Gold	14,043	228	16.2	7.7	323	23.0	10.8
Nickel	13,030	162	12.4	6.3	221	17.0	8.6
Bauxite and alumina	8,268	140	16.9	8.8	200	24.2	12.6
Mineral sands	2,696	20	7.4	4.3	38	14.1	8.1
Base metals	2,383	22	9.2	4.4	63	26.4	12.5
Diamonds	2,091	8	3.8	1.5	24	11.5	4.6
Coal	860	14	16.3	11.0	27	31.4	21.3
Salt	843	7	8.3	5.0	15	17.8	10.8
Construction materials	575	7	12.2	5.7	17	29.6	13.9
Tin, tantalum and lithium	464	0.0	0.0	0.0	4	8.6	3.6
Other	2,004	17	8.5	4.7	59	29.4	16.2
Total mining	**66,183**	**731**	**11.0**	**5.5**	**1,166**	**17.6**	**8.7**

NOTE: Disabling injury includes where the injured person:

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

DISABLING INJURIES CONTINUED

DISABLING INJURY PERFORMANCE INDICATORS

The disabling injury performance indicators for the mining sector show mixed results for 2007–08. Figures 26 to 29 depict the performance indicators of incidence rate, frequency rate, days off per injury and days off per million hours worked.

Some interesting trends noted in the disabling injury performance indicators for all mines during 2007–08 include the following.

- The overall incidence rate improved by 5%, falling from 11.6 to 11.0. The surface incidence rate improved by 13% (from 10.4 to 9.0) whereas the underground incidence rate deteriorated by 24% (from 22.2 to 27.6).
- A similar trend was noted in the frequency rate for both surface and underground. The overall frequency rate improved slightly by 2%, falling from 5.6 to 5.5. The surface frequency rate improved by 12% (from 5.1 to 4.5) whereas the underground frequency rate deteriorated by 27% (from 9.4 to 11.9).
- The overall days off per disabling injury deteriorated by 6%, rising to 32.8. The surface days off per disabling injury deteriorated by 7% (from 32.9 to 35.2) and the underground days off per disabling injury deteriorated by 16% (from 22.8 to 26.5).
- The rise in days off per disabling injury was greater than the fall in frequency rate and resulted in a slight deterioration of 3% to the overall days off per million hours worked, up from 174 to 179. The surface days off per million hours worked improved by 6% (from 168 to 158) whereas the underground days off per million hours worked deteriorated significantly by 48% (from 214 to 316).

DISABLING INJURY PERCENTAGE BREAKDOWN FOR 2007–08

Appendices L and M 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

- Hand, leg and back injuries, each at 19%, accounted for the largest proportion of underground injuries. Arm injuries accounted for the largest proportion of surface injuries at 24%. Of the underground leg injuries, 46% were to knees and 36% were to ankles. Of the surface arm injuries, 40% were to shoulders, 24% were to elbows and 19% were to wrists.
- Arm injuries accounted for the next largest proportion of injuries underground at 15%, followed by neck injuries at 10%. Of the arm injuries, 52% were to shoulders, 10% were to elbows and 16% were to wrists.
- Leg injuries accounted for the second largest proportion of surface injuries at 22%, followed by back injuries at 21%. Of the leg injuries, 37% were to knees and 46% were to ankles.

Injuries by nature

- Sprain or strain was the highest ranking nature of injury for both underground and surface injuries at 48% and 58%, respectively.
- The second highest ranking nature of underground injury was bruise or contusion (14%), followed by laceration at 9%.
- The second highest ranking nature of surface injury was laceration and bruise or contusion, both at 8%, followed by fracture at 6%.

Injuries by location

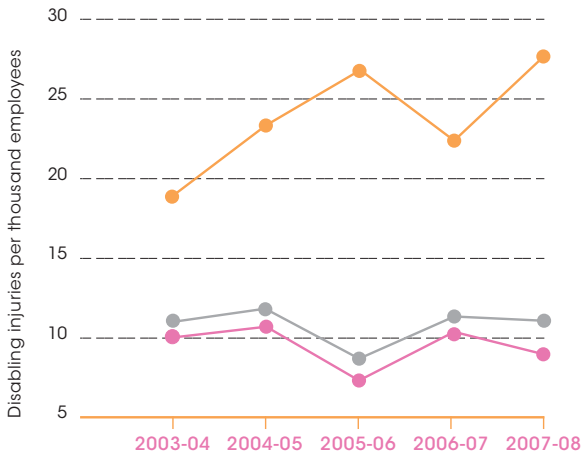
- The largest proportion of underground injuries occurred in production and development areas (70%), followed by access and haulage ways at 14% then storage areas and dumping areas, both at 4%.
- The largest proportion of surface injuries occurred in treatment plants (35%), followed by open pits at 21% then workshops at 17%.

Injuries by type

- Over-exertion or strenuous movements, at 26%, was the most common accident type for underground injuries, followed by struck by object at 11% then slip or trip at 9%.
- The most common accident type for surface injuries was also over-exertion or strenuous movements at 40%, followed by stepping at 10% then slip or trip at 9%.

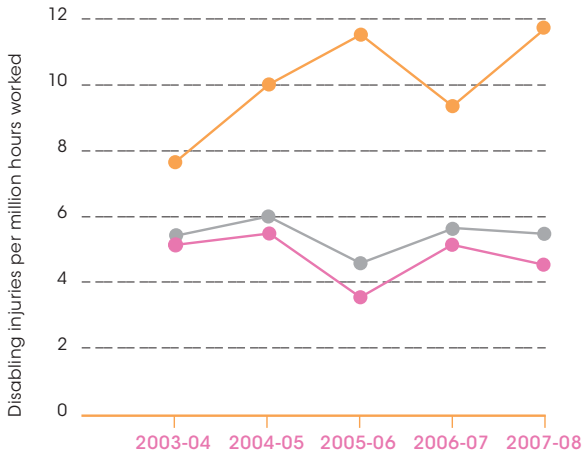
DISABLING INJURY PERFORMANCE INDICATORS 2003–04 TO 2007–08

FIGURE 26 INCIDENCE RATE



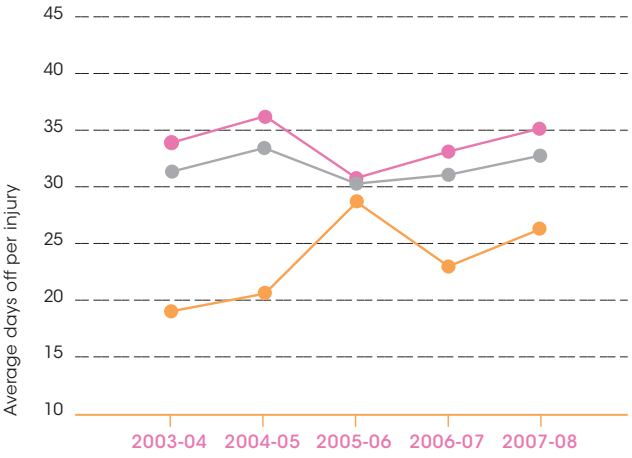
	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	18.8	23.4	26.8	22.2	27.6
Surface	10.0	10.7	7.1	10.4	9.0
Total	10.8	11.9	9.0	11.6	11.0

FIGURE 27 FREQUENCY RATE



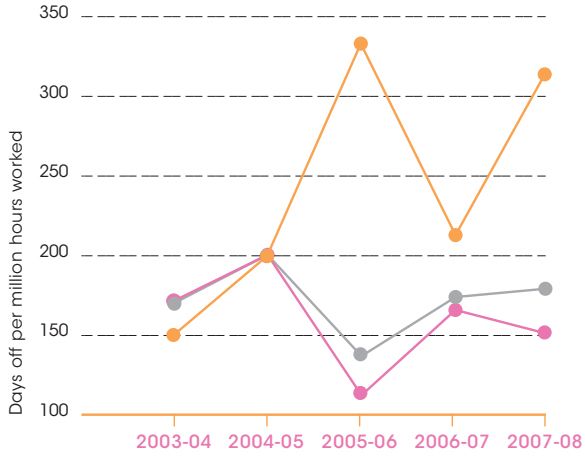
	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	7.7	10.0	11.5	9.4	11.9
Surface	5.1	5.6	3.7	5.1	4.5
Total	5.4	6.1	4.5	5.6	5.5

FIGURE 28 AVERAGE DAYS OFF PER INJURY



	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	19.1	20.6	28.9	22.8	26.5
Surface	33.9	36.2	30.8	32.9	35.2
Total	31.5	33.3	30.3	30.9	32.8

FIGURE 29 DAYS OFF PER MILLION HOURS WORKED



	2003-04	2004-05	2005-06	2006-07	2007-08
Underground	148	205	333	214	316
Surface	173	202	113	168	158
Total	170	202	137	174	179

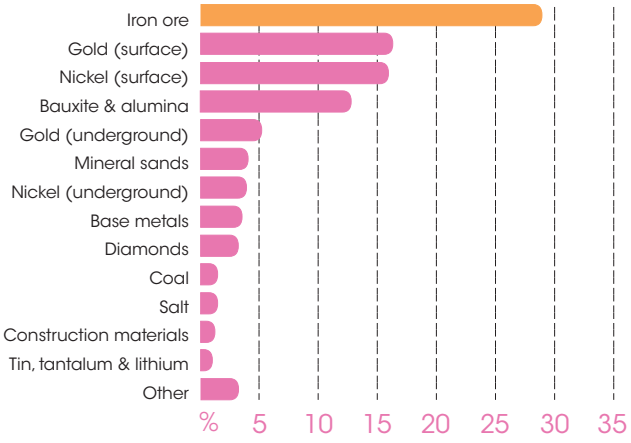
APPENDICES

APPENDIX A

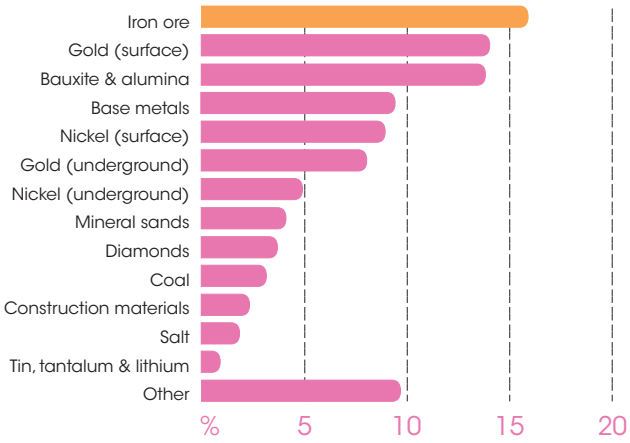
WESTERN AUSTRALIA MINES 2007-08

435 INJURIES

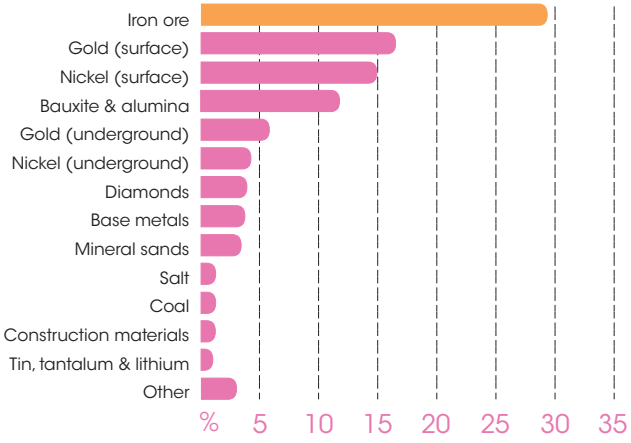
PERCENTAGE OF EMPLOYEES



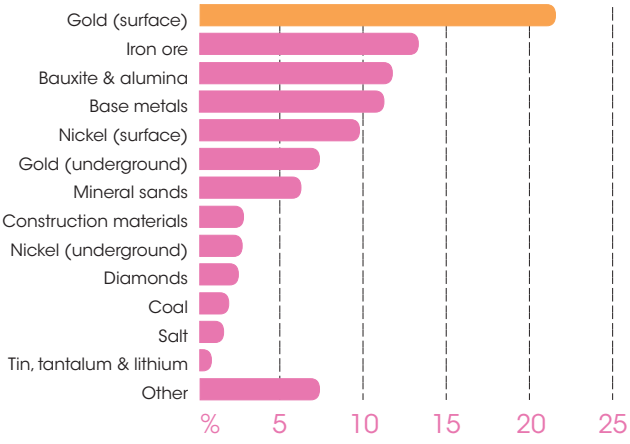
PERCENTAGE OF INJURIES



PERCENTAGE OF MILLION HOURS WORKED



PERCENTAGE OF WORK DAYS LOST

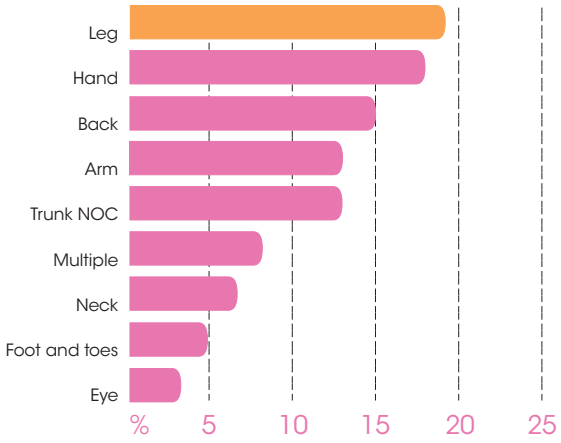


APPENDIX B

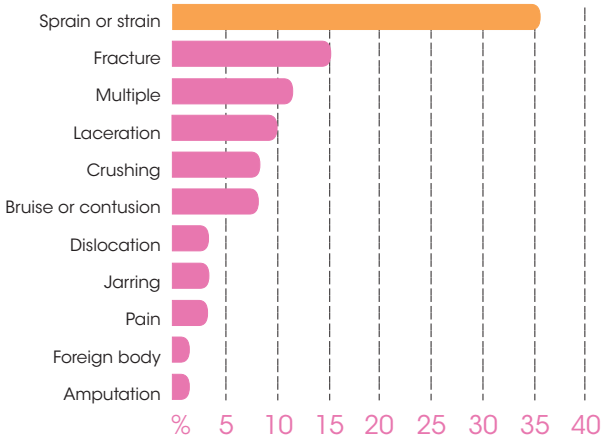
SERIOUS INJURIES UNDERGROUND 2007-08

62 INJURIES

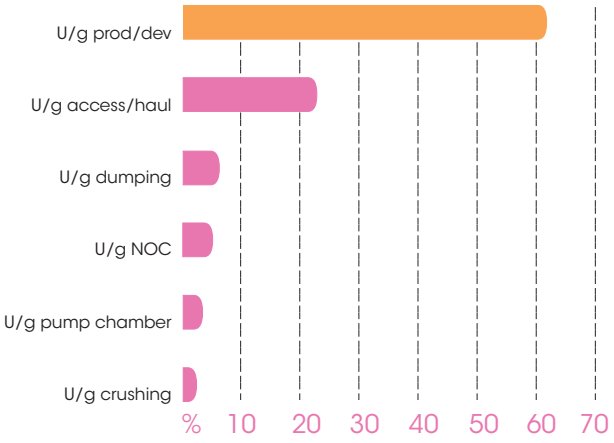
PART OF BODY



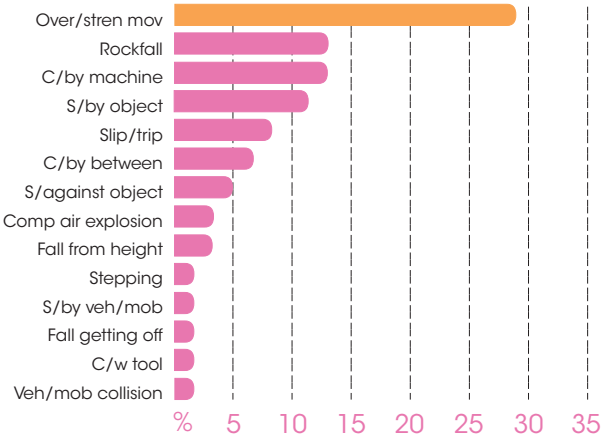
NATURE OF INJURY



LOCATION OF ACCIDENT



TYPE OF ACCIDENT

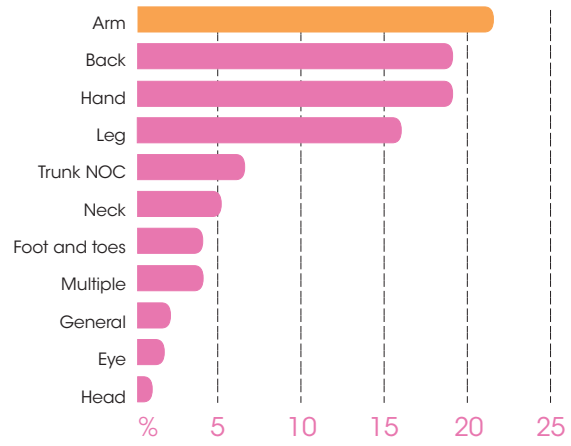


APPENDIX C

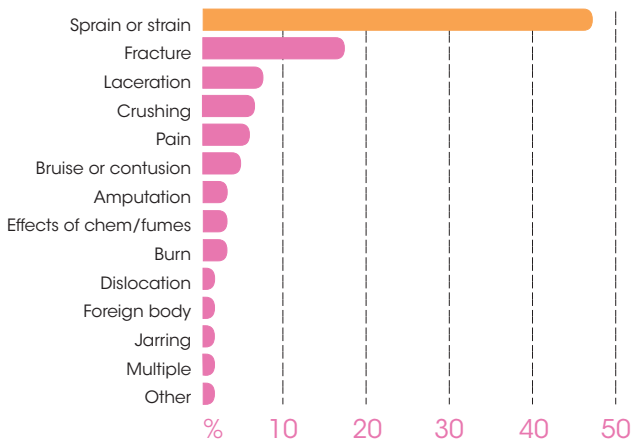
SERIOUS INJURIES SURFACE 2007-08

269 INJURIES

PART OF BODY



NATURE OF INJURY



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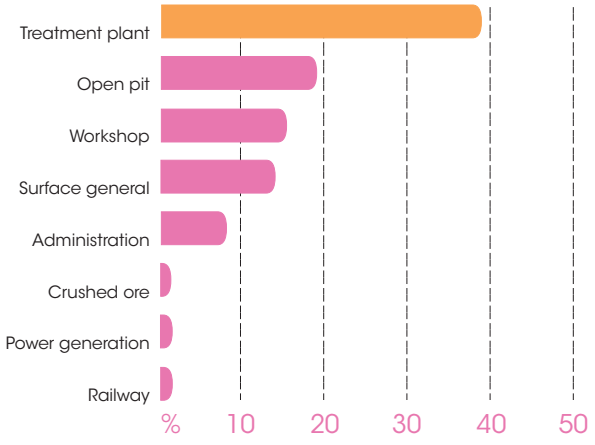
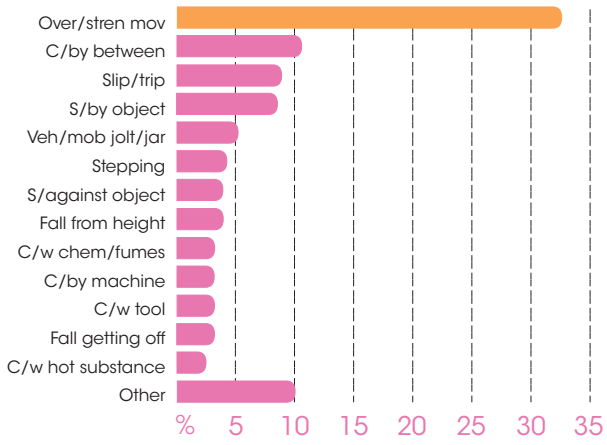


TYPE OF ACCIDENT

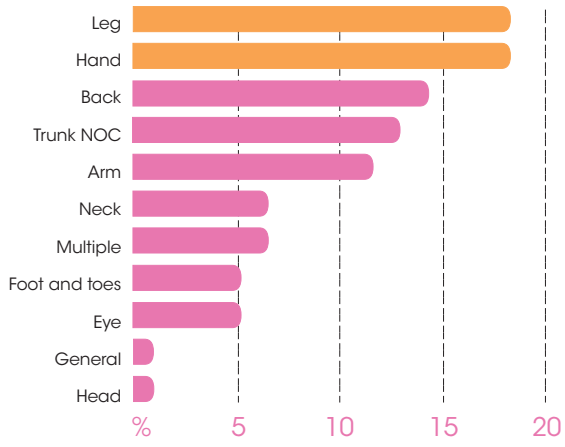


APPENDIX D

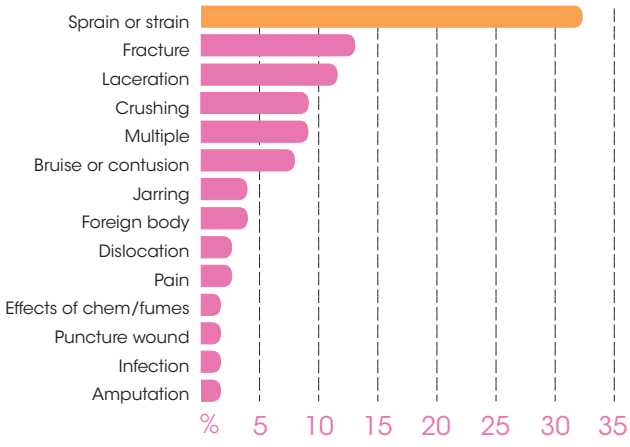
METALLIFEROUS UNDERGROUND INJURIES 2007-08

78 INJURIES

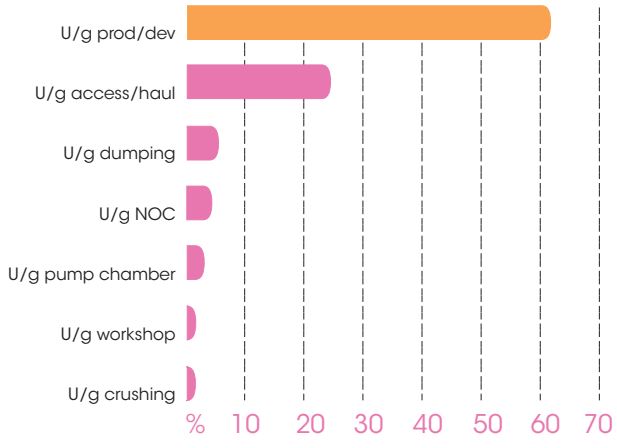
PART OF BODY



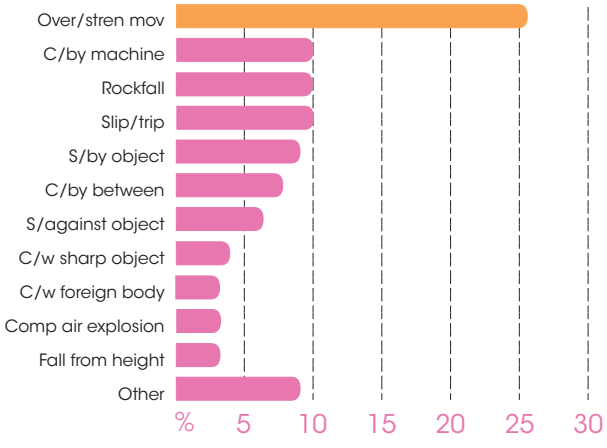
NATURE OF INJURY



LOCATION OF ACCIDENT



TYPE OF ACCIDENT

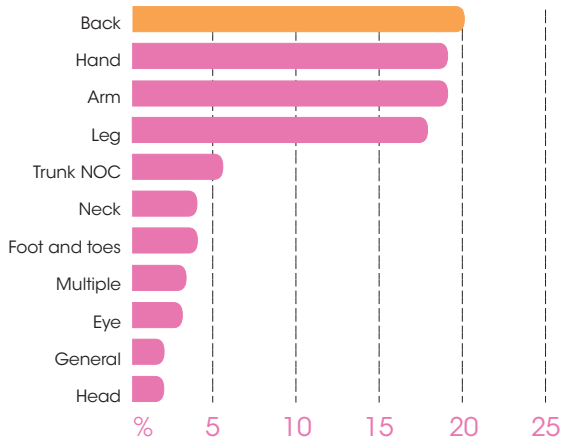


APPENDIX E

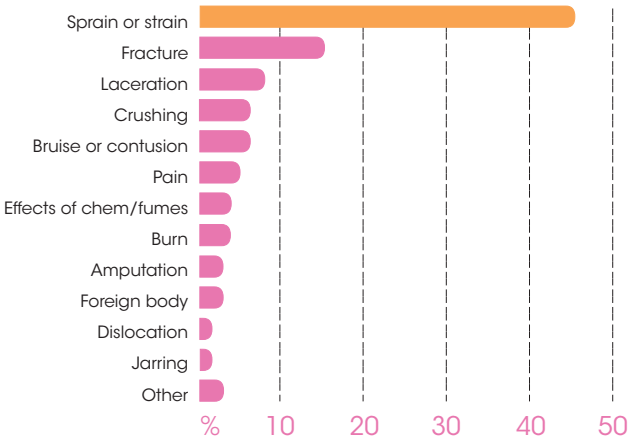
METALLIFEROUS SURFACE INJURIES 2007-08

344 INJURIES

PART OF BODY



NATURE OF INJURY



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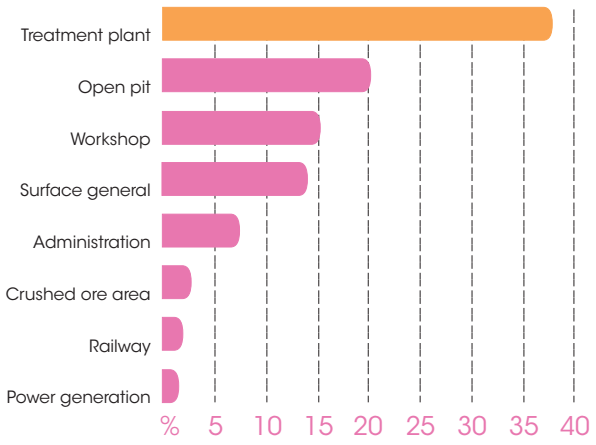
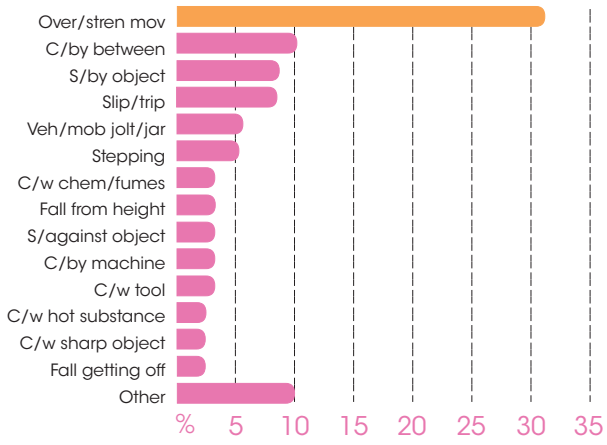


TYPE OF ACCIDENT

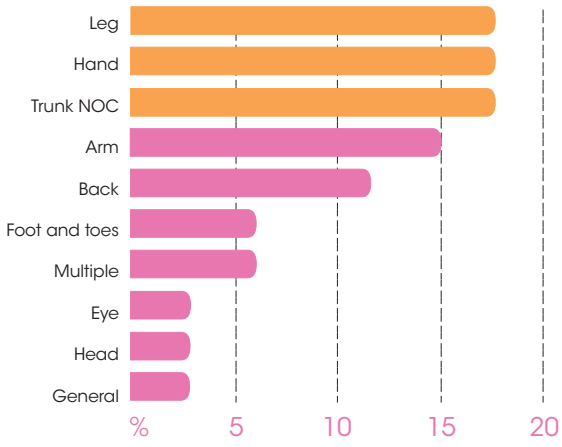


APPENDIX F

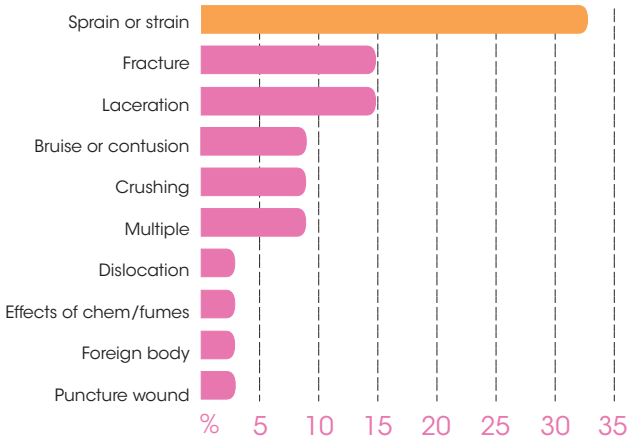
GOLD UNDERGROUND INJURIES 2007-08

34 INJURIES

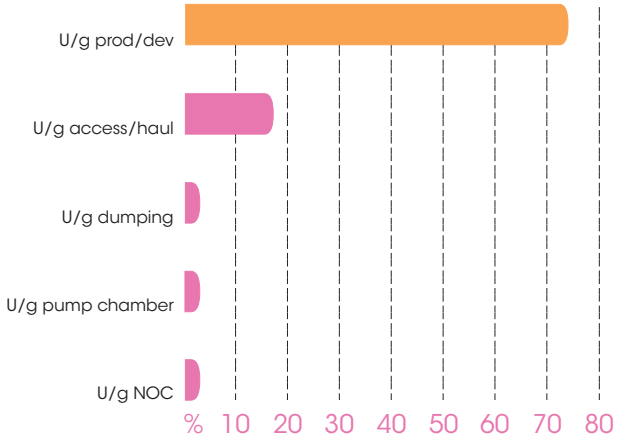
PART OF BODY



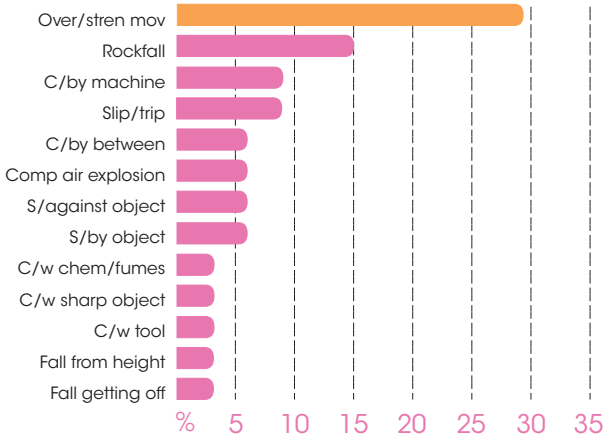
NATURE OF INJURY



LOCATION OF ACCIDENT



TYPE OF ACCIDENT

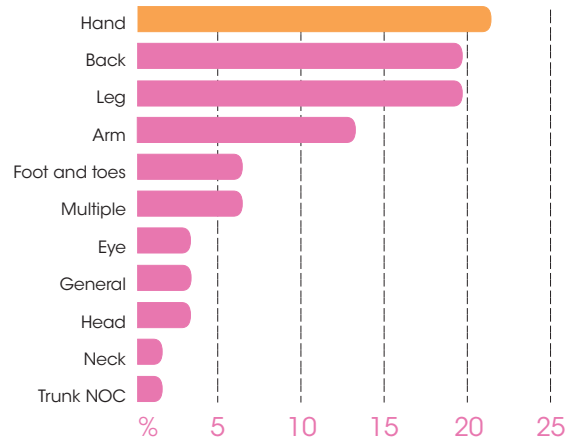


APPENDIX G

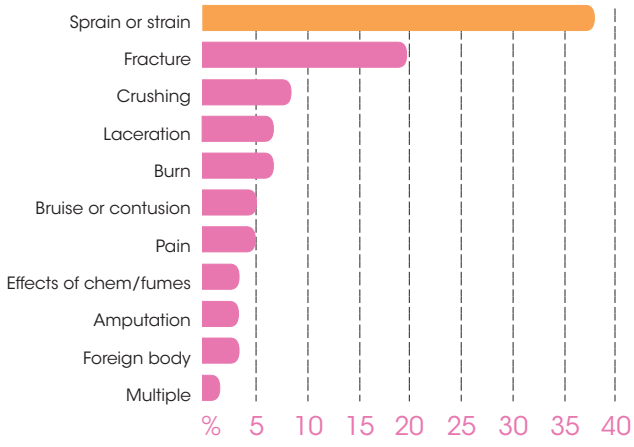
GOLD SURFACE INJURIES 2007-08

61 INJURIES

PART OF BODY



NATURE OF INJURY



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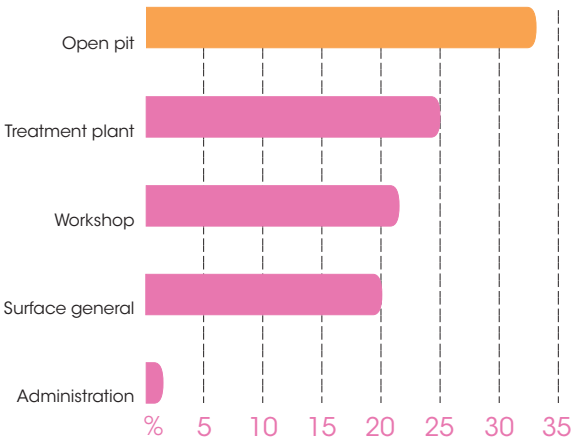
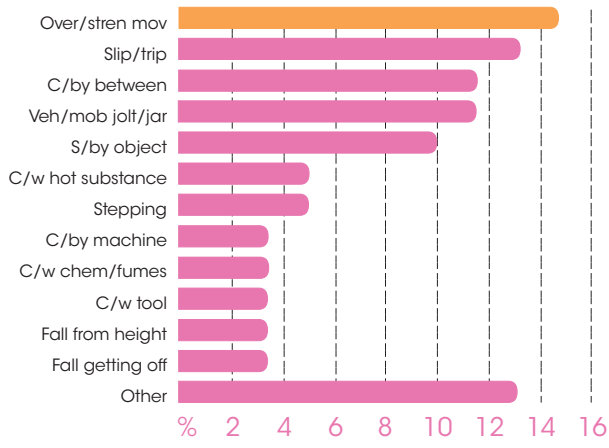


TYPE OF ACCIDENT

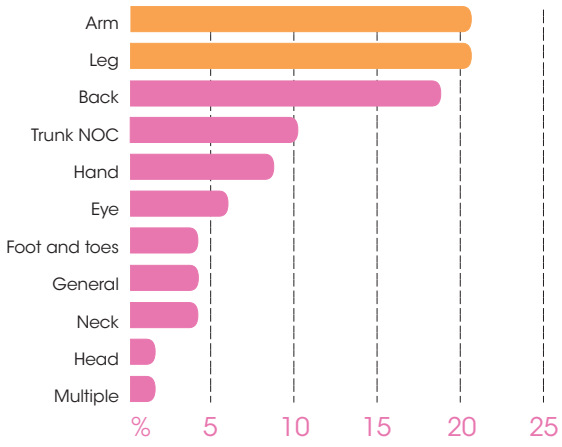


APPENDIX H

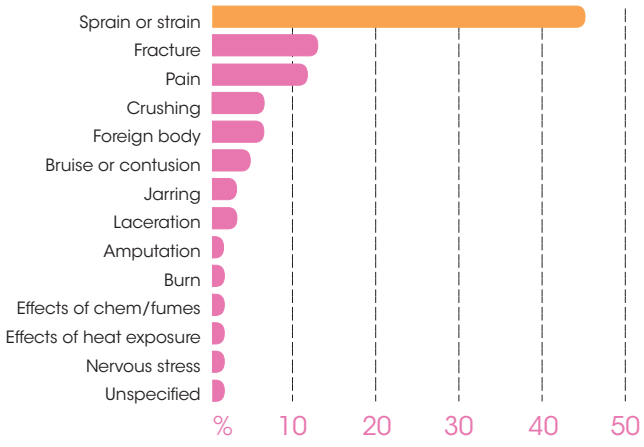
IRON ORE INJURIES 2007-08

69 INJURIES

PART OF BODY



NATURE OF INJURY



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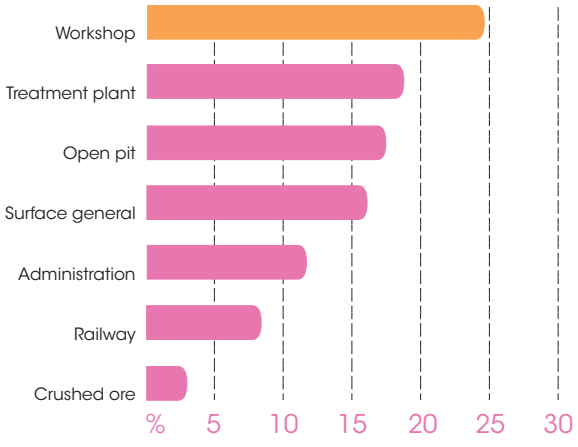
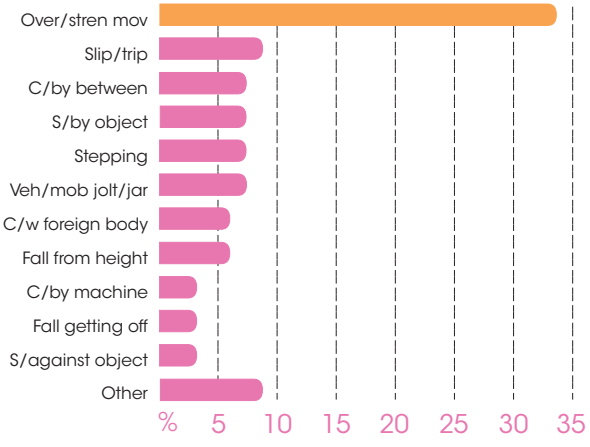


TYPE OF ACCIDENT

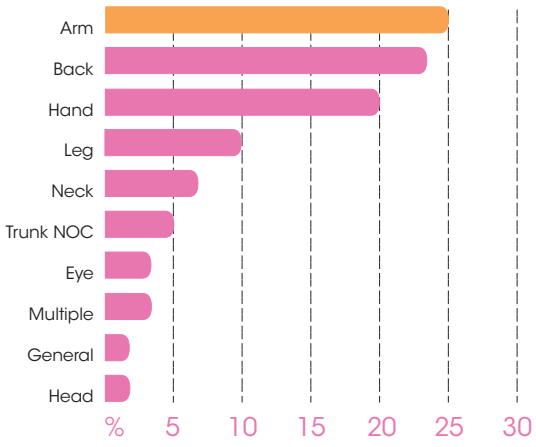


APPENDIX 1

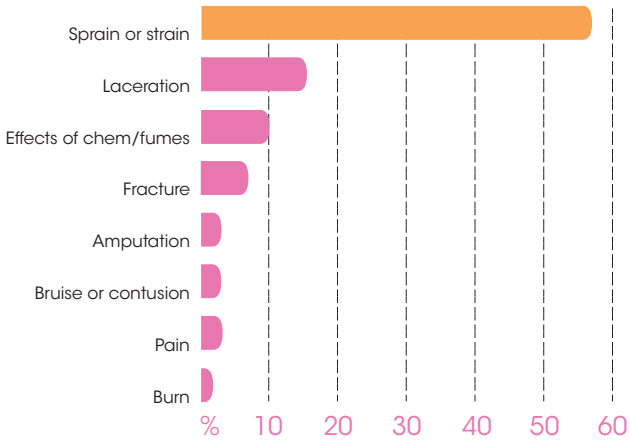
BAUXITE AND ALUMINA INJURIES 2007-08

60 INJURIES

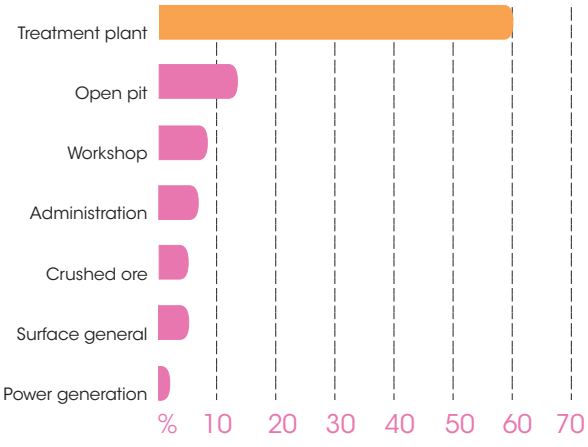
PART OF BODY



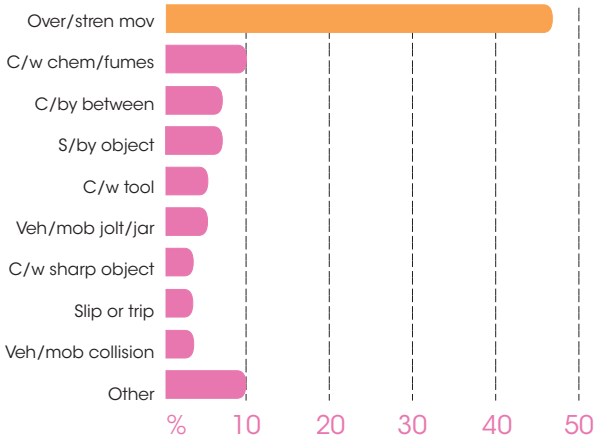
NATURE OF INJURY



LOCATION OF ACCIDENT



TYPE OF ACCIDENT

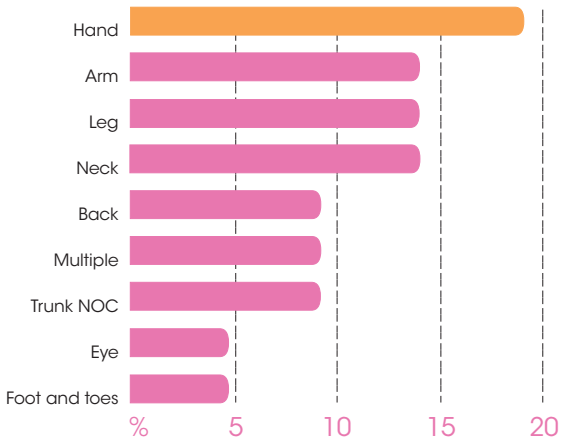


APPENDIX J

NICKEL UNDERGROUND INJURIES 2007-08

21 INJURIES

PART OF BODY



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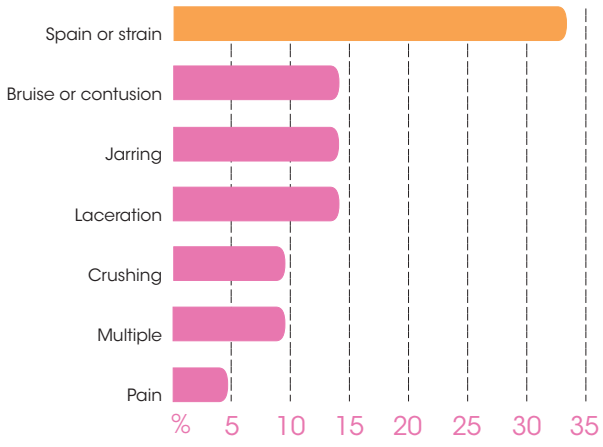

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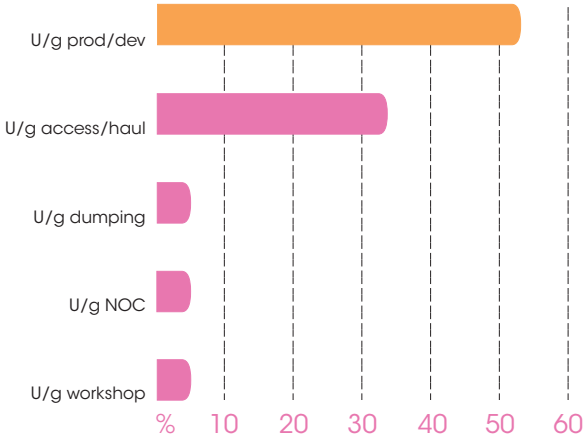

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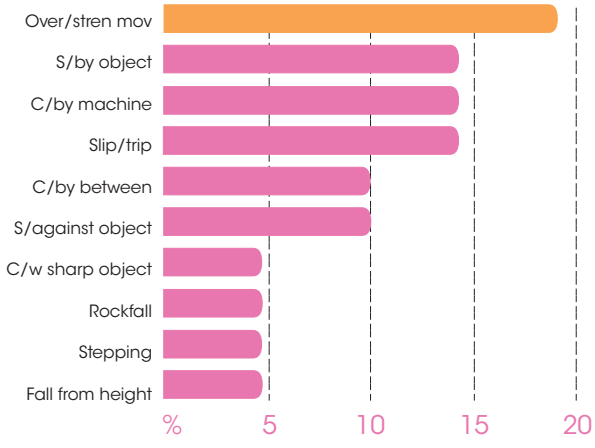
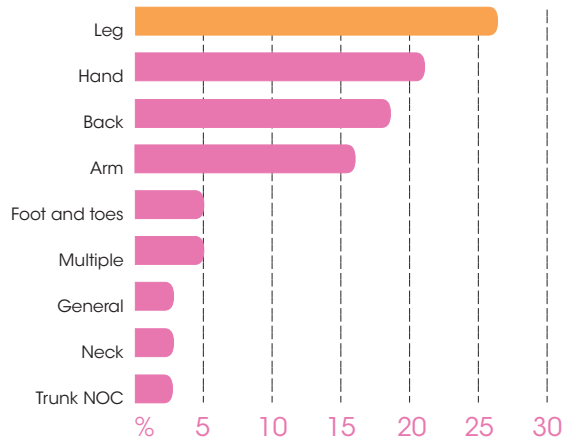


APPENDIX K

NICKEL SURFACE INJURIES 2007-08

38 INJURIES

PART OF BODY



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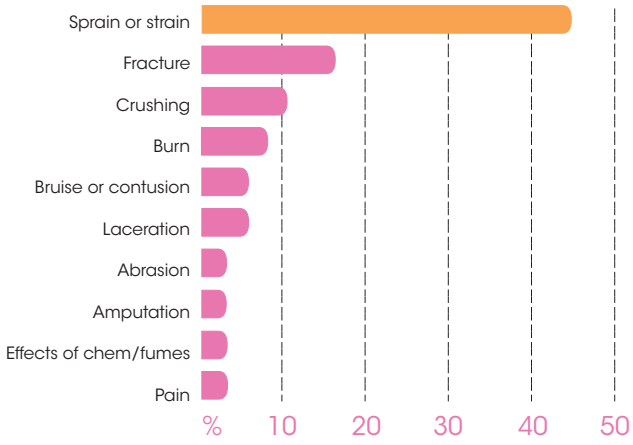
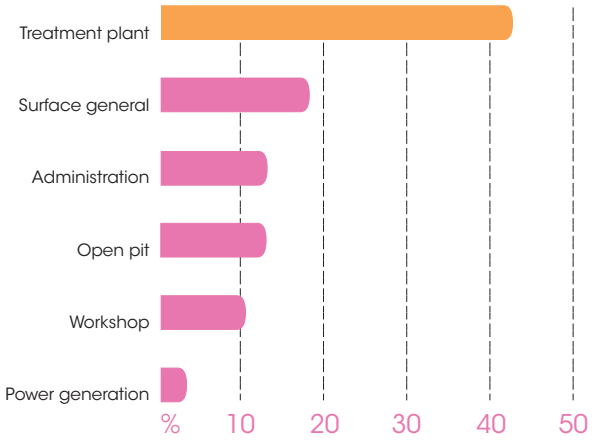
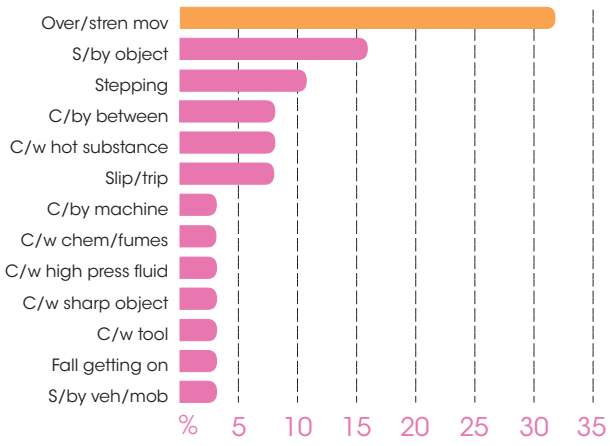


LOCATION OF ACCIDENT



TYPE OF ACCIDENT

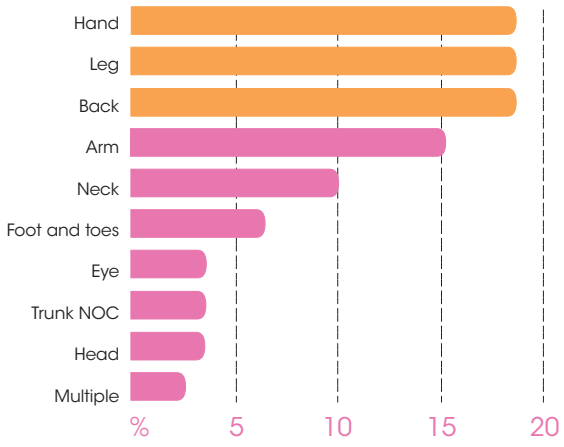


APPENDIX L

DISABLING UNDERGROUND INJURIES 2007-08

205 INJURIES

PART OF BODY



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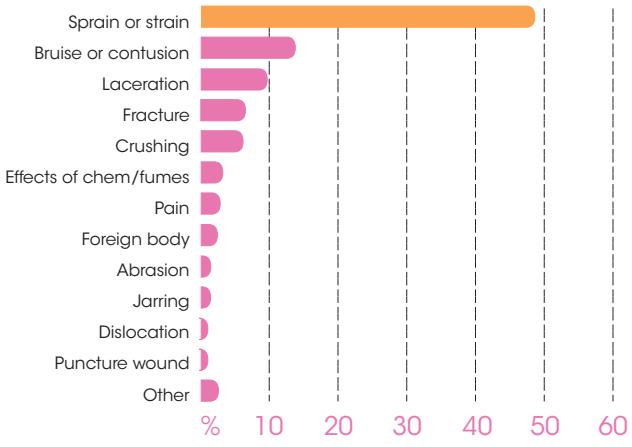

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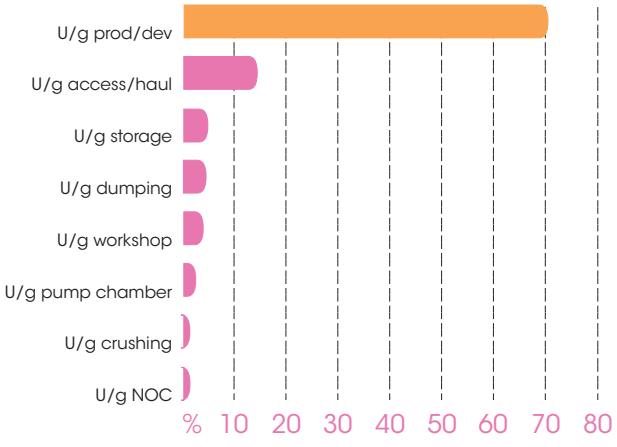
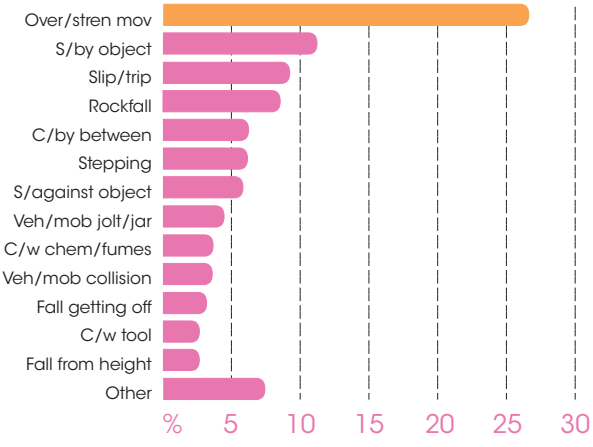


TYPE OF ACCIDENT

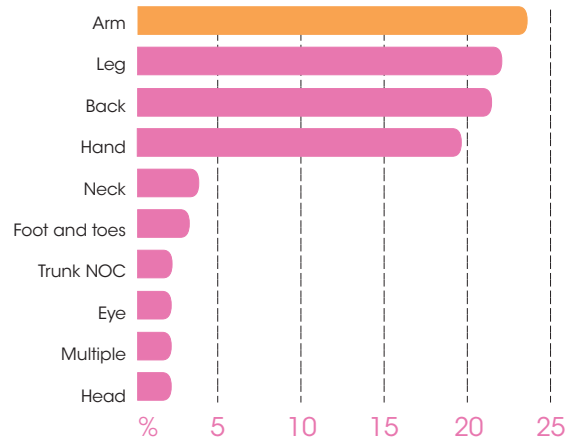


APPENDIX M

DISABLING SURFACE INJURIES 2007-08

536 INJURIES

PART OF BODY



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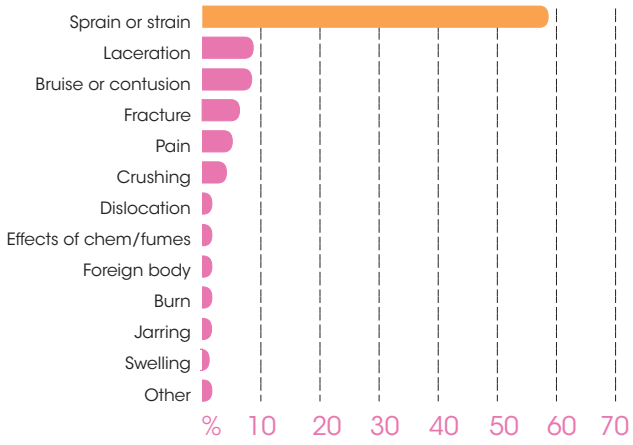
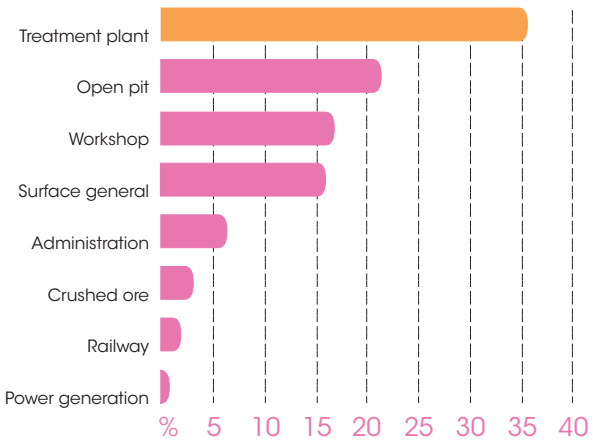
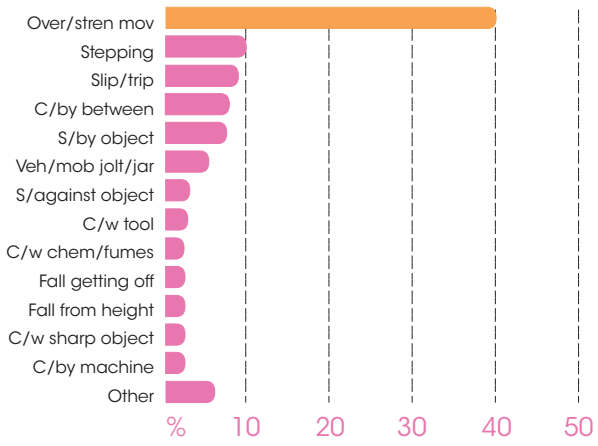
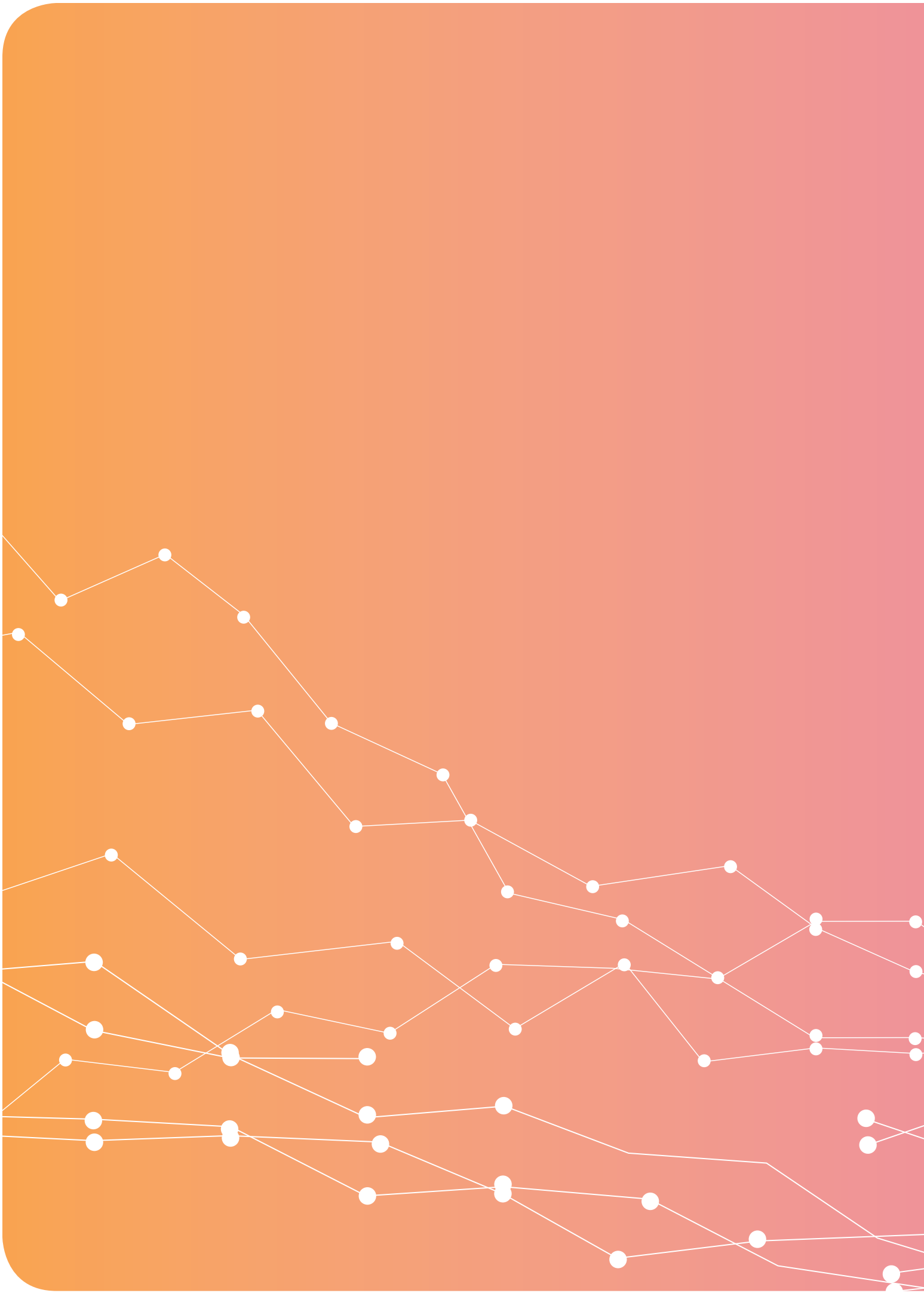


LOCATION OF ACCIDENT



TYPE OF ACCIDENT





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