



## Maintenance

Issued March 2020

It is essential for mining operations to regularly maintain equipment and machinery to ensure they can be operated reliably and safely. Maintenance and repairs can involve unusual working conditions, non-routine tasks, or close contact with machineries, exposing workers to higher risk of injury unless rigorous safety measures are practised.

The snapshot covers the period from July 2018 to June 2019 (unless stated otherwise). There were 1,324 injuries and 2,706 notifiable incidents (specific reporting categories). Of these, 422 injuries and 446 notifiable incidents were identified as maintenance activities.

@DMIRS\_WA

Department of Mines, Industry Regulation and Safety

### Injuries by occupation



**Mechanical fitters** had the highest proportion of injuries at **37%**



**Processing plant occupations** had the 2nd highest at **17%**

### Injuries by nature



**283** of the 422 injuries were **musculoskeletal disorder**



**170** were from **sprains and strains**

### Injuries by location



**39%**

**Treatment plant or ore processing** had the highest percentage of injuries



**32%** were in **workshop**

### Injuries by employment type

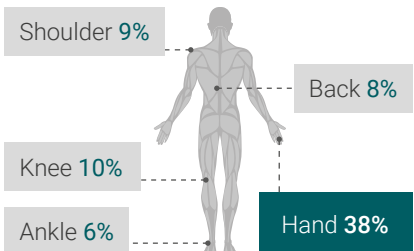


**241**  
Company



**181**  
Contractor

### Part of body (top 5)



### Notifiable incidents (top 2)



**28%** of notifiable incidents injuries were **outbreak of fire**



**Electrical incidents and presence of gas** had the 2nd highest at **14%**

### Injuries by severity



**173 of the 422 injuries** were **lost time injuries**

### Type of accident (top 3)



**26%** of the 422 injuries were **overexertion and strenuous movement**

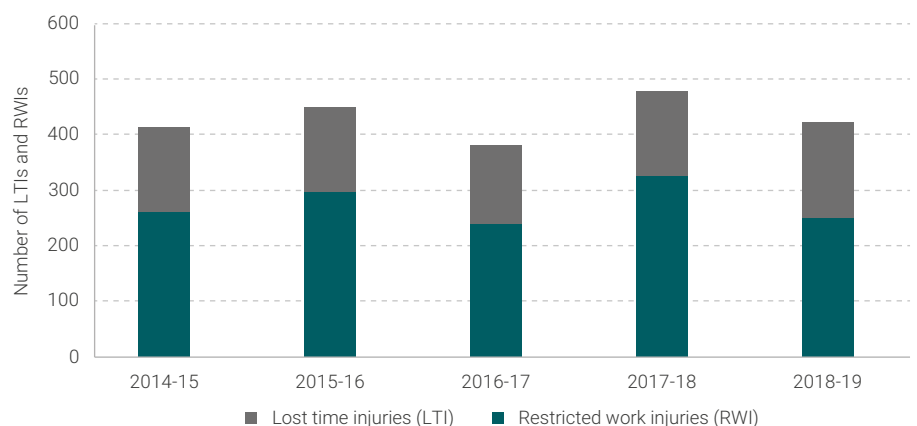


Caught by or between object or machine had the 2nd highest at **20%**



Struck by or struck against object had the 3rd highest at **16%**

### Maintenance LTI and RWI from July 2014 to June 2019



## Spotlight on Mines Safety Significant Incident Report No. 273

### Near miss when a failed rod ejected from a hydraulic pulling kit

27 February 2019



#### Contributory causes

- Pulling rods were incorrectly matched with the higher capacity hydraulic cylinders.
- Purpose designed and built original equipment manufacturer (OEM) tooling was not used.
- Selected engineering control (special purpose tooling) was ineffective at managing identified hazards.
- Workers were not trained and assessed as competent in the task they were carrying out.
- Safe system of work relating to the task and contractor management was not adequate.

### Safe work practices



Suitable personal protection equipment (PPE) to be worn at all times during maintenance operations (e.g. welding, cutting).



Before using chemical products, refer to safety data sheets and other safety information in the site's hazardous substances register.



Ensure restricted areas, where required, are adequately ventilated. Also have another person present to render assistance in case of emergency.



Provide safe access to the workplaces (platforms, scaffolds, guardrails).

## Spotlight on Mines Safety Significant Incident Report No. 264

### Solvent vapour explosion during engine maintenance task

6 July 2018



#### Contributory causes

- Inadequately identifying the hazards associated with the use of the particular cleaning product in the site's risk assessment:
  - flammable properties of the vapours released by the brake cleaner solvent were not identified
  - the solvent was branded as a brake and parts cleaner and degreaser, and was considered by the site as a general use item
  - the application of cleaning solvents with this task had not been identified in the site's safe work instructions or in the original equipment manufacturer's (OEM's) maintenance specifications.
- Failure to follow safety instructions provided by the solvent manufacturer on the SDS.
- Failure to ensure adequate ventilation of the work area.
- Failure to use electrical equipment suitable for a flammable environment.



Shut down machinery before commencing service or repairs.



Do not put your hands into areas that you cannot see.



Competent staff must be available at all times to supervise contractors.

## Some recent incidents



### Hand crush injury (4 fingers) 02/08/18

During maintenance at a processing plant, a mechanical fitter was assisting riggers to lower and guide a furnace electrode shroud into place when he received a crush injury to his fingers. The shroud failed to line up properly with the seat and the fitter used his hands to push it into place, when the shroud suddenly dropped and trapped his hand beneath it. The riggers lifted the shroud to release the fitter's hand. He was seen by the site medic before being taken to the regional hospital for specialist surgery.



### Fracture from rolled ankle 06/10/18

The operator was preparing to line up the electrode during electrode addition with the straight edge when he shifted his footing and rolled his ankle on the slightly raised section (13 mm) that surrounds the base of the electrode. The operator has continued on with the electrode addition with some discomfort. After the task was complete he has reported the ankle soreness to the supervisor and continued normal duties for the remainder of the shift. The following day the operator has attempted to make tables on furnace 2 but could not take the weight of his body on the ankle. The operator was sent to medical aid for review. Appears there is a small fracture as a result of the occurrence.



Ensure coordination between different teams, operation and maintenance.



Maintain good housekeeping.



Conduct appropriate risk assessment for the activities and implement controls.