



## Ground control

Issued October 2017

Hazardous ground movements resulting from ineffective or inadequate ground control have the potential for serious injury or death. Effective ground control starts with identifying the potential for hazardous ground movements, analysing and assessing the risk and implementing controls to eliminate or reduce the exposure. It is important to understand hazardous areas in your workplace and the potential outcomes if ground control is inadequate.

This snapshot covers ground control incidents for the period from 1 July 2016 to 30 June 2017.

For more information about occupational safety and health, visit our website [www.dmirs.wa.gov.au](http://www.dmirs.wa.gov.au)

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Department of Mines, Industry Regulation and Safety

### Injuries by severity



identified as ground control injuries were **classified as serious**

1 of the serious injuries was a **lost time injury**

### Injuries by nature



Of the serious injuries, there was 1 each of concussion, contusion, swelling and strain

### Injuries by employment type



2

Contract



4

Permanent

### Notifiable incidents by area

57% of the 173 notifiable incidents occurred during **surface operations**

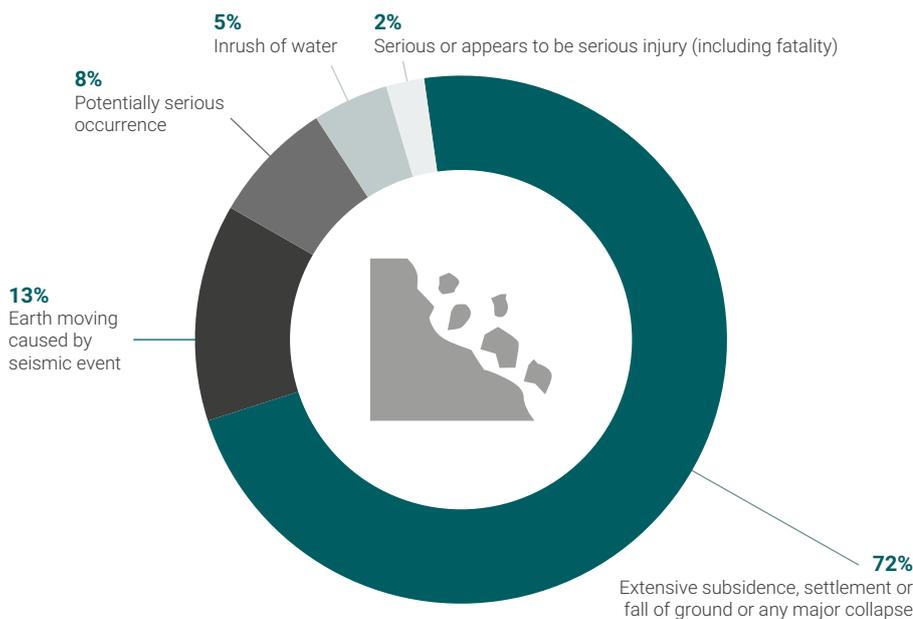


43% of the 173 notifiable incidents occurred during **underground operations**



### Notifiable incidents by reporting category

n = 173



### Notifiable incidents by description summary



52% wall failure



41% rockfall



5% incidents not otherwise classified (NOC)



1% inrush of water

The remaining 1% consists of falling object and manual activity.

## Some recent incidents



### Truck or mobile equipment over the edge 24/08/17

An underground loader fell into a void created when the operator conducted bogging activities in the wrong level. The operator had been given written and verbal instructions to bog ore from an ore drive but commenced bogging waste material from a back-filled stope on a level below. The operator had removed 60–100 t of waste from the back-filled stope before realising the error. The operator then drove the machine to the correct ore drive where the front of the loader fell ~ 4 m into a void, created by the removal of waste from below. The shift supervisor was notified and the operator exited the loader through the rear window.



### Wall failure 07/06/17

A wall failure in an open pit resulted in ~ 5,000 tonnes of failed material. The slip happened overnight in an area that was not being mined. There were no personnel in the area at the time of the event and there was no damage to property.

## Spotlight on Mines Safety Significant Incident Report No. 198

### Large boulder falls onto active haul road

16 June 2014



#### Key message:

Detailed hazard identification at all stages of operation and implementation of appropriate design and controls is key to ensuring a safe workplace.

## Spotlight on Mines Safety Significant Incident Report No. 221

### Operator struck by rolling rock at stope draw point – fatal accident

11 June 2015

#### Key message:

Where there is potential for hazardous ground movement, it is essential to identify controls and ensure procedures are in place to prevent worker exposure.

## Spotlight on Mines Safety Significant Incident Report No. 200

### Fall of ground in underground mine – fatal accident

20 June 2014

#### Key message:

Adequate monitoring of ground controls and effective ground control is fundamental in reducing the risk of injury due to hazardous ground movements.

## KNOW YOUR HAZARDS

### Are you aware of your workplace hazards?

Know Your Hazards is a video series produced by the Department for the resources industry. The series targets common workplace hazards that have injured or killed. Let's work together to reduce the risk of these accidents happening.



View or download our hazard awareness videos at [www.dmp.wa.gov.au/HazardVideos](http://www.dmp.wa.gov.au/HazardVideos)

## Applying the hierarchy of control

### Things you can do



**Eliminate** – Safely remove loose rock overhanging a workplace.



**Substitute** – Mine design should address ground control issues (e.g. prevent formation of underground pillars that may become highly stressed; limit the formation of troublesome bullnoses in open pit wall).



**Isolate / segregate** – Install and monitor catch bunds of appropriate size and distance from the hazard to stop the movement of unstable rock.



**Engineering** – Understand your role in the design quality control and assurance of ground support and reinforcement at your site.



**Administration** – Make sure you follow the site's formal procedures to stay clear of hazards.



**PPE** – Wear PPE appropriate for the task at hand and the types of hazards it can control.