



## Integrity of structures

Issued August 2020

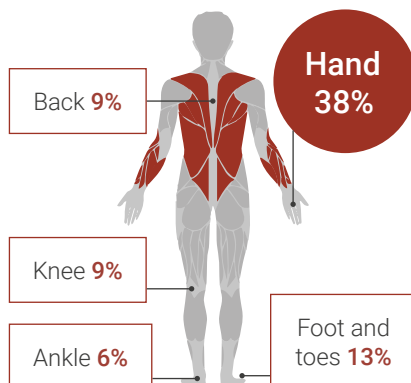
When the integrity of a structure is compromised, there is the potential for serious and fatal injuries. The most common types of structural failure include rust and corrosion, cyclones or strong winds, design faults, inadequate alterations of design, poor construction of structures and lack of proper assessment. There are three components to consider when addressing the causation factors for failure: design, construction and maintenance. Communication between competent people during these three phases is important for the integrity of structures.

The snapshot covers the period from 1 January 2019 to 30 December 2019 (unless stated otherwise). There were 1,411 injuries and 2,647 notifiable incidents (specific reporting categories). Of these, 32 injuries and 94 notifiable incidents involved structural integrity (this is an increase from the previous March 2018 snapshot covering this topic).

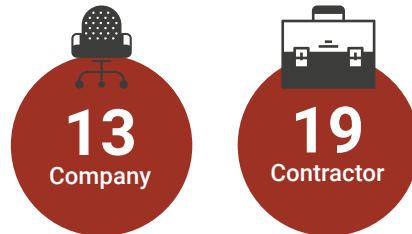
@DMIRS\_WA

Department of Mines, Industry Regulation and Safety

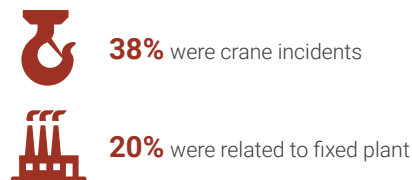
### Injuries by part of body (top 5)



### Injuries by employment type



### Notifiable incidents by top two description summary



### Injuries by nature



### Type of accident (top 3)



### Injuries by days lost



### Injuries by severity



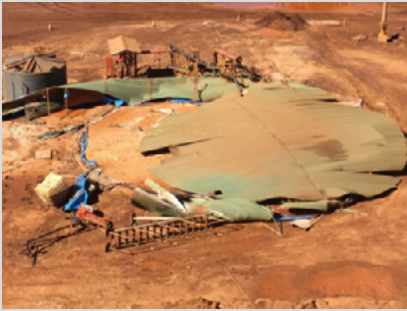
### Injuries by location



## Spotlight on Mines Safety Significant Incident Report No. 269

### Structural failure of a corrugated steel water tank

12 November 2018



#### Contributory causes

- Inadequate inspection and maintenance management of the water tank.
- Failure to ensure the condition of the structure remains within the design limits.
- Failure to assess the structural integrity of the tank by a competent person with appropriate training and experience.

## Spotlight on Mines Safety Significant Incident Report No. 274

### Structural failure of fixed conveyor stacker

18 March 2019



#### Contributory causes

- Inadequate inspection and maintenance of the structural members.
- Failure to remove product build-up on structural members.
- Failure to provide access to inspect all parts of the structure.

## Some recent incidents



### Crushed finger from chain detachment 03/09/19

A screen basket detached from a retaining chain on one side and the basket dropped on one side with the operator's finger wrapped in the chain holding the approximately 100 kg basket at a processing plant. A colleague came to assist to free the operator's finger. The bracket came off the lug to which the chain was attached.



### Fall from height 18/05/19

A worker has fallen three metres onto a concrete floor when the checker plate floor he was standing on to set up rope rescue training gave way at a processing plant. The worker was treated for pelvic fractures.

## Safe work practices

### Examples include:



Only use the structure for the purpose for which it was designed unless modifications have been design checked, tested and approved by qualified professionals



Carry out annual structural inspections to produce detailed reports of any repairs required



For older plant, carry out a structural design audit to ensure structural steel components are not overstressed, and the supporting structure complies with the relevant Australian Standards

For more information see *Large working structures – mines safety matters pamphlet*



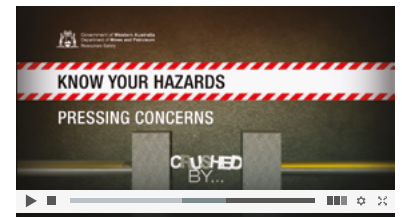
### Incident affecting registered plant 15/03/19

The handrail of an elevating work platform (EWP) basket made contact with a chain at a processing plant. The chain dented the handrail of the basket. The chain was attached to the EWP chassis and a vertical column that required straightening. The EWP was removed from service.

## 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)