



Electric shocks

Issued March 2019

Electricity is invisible. Everyone has the potential to be exposed to electrical hazards, not just electricians. Personal contact with electrical energy can result in death or serious injury. It is important to follow procedures around electricity, use electrical equipment properly, and remove faulty electrical equipment from service.

Between 1 January 2018 and 31 December 2018, there were 1,233 injuries and 2,810 notifiable incidents (specific reporting categories). Of these, 298 notifiable incidents were identified as electric shocks.

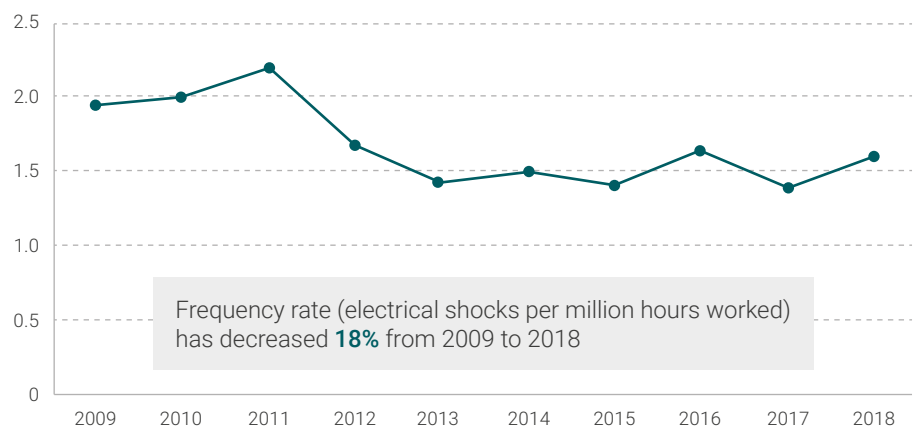
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 Department of Mines,
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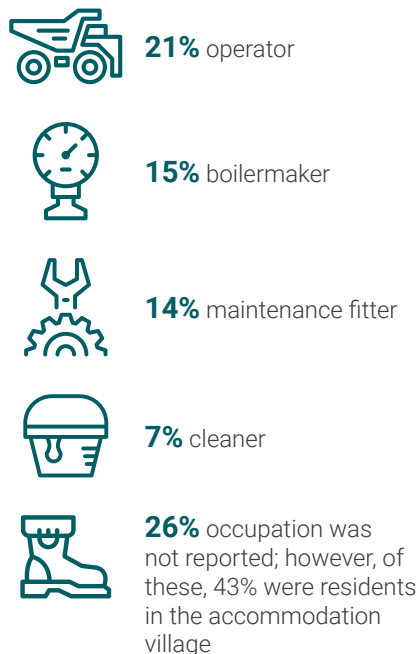


23% of electrical shocks occurred in a **moist environment** from 2014 to 2018

Electrical shock frequency rate from 2009 to 2018



Electric shock by occupation (top 5) in 2018



Electric shock by area in 2018

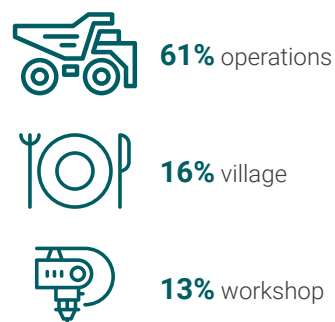
265 of the 298 incidents occurred during **surface operations**



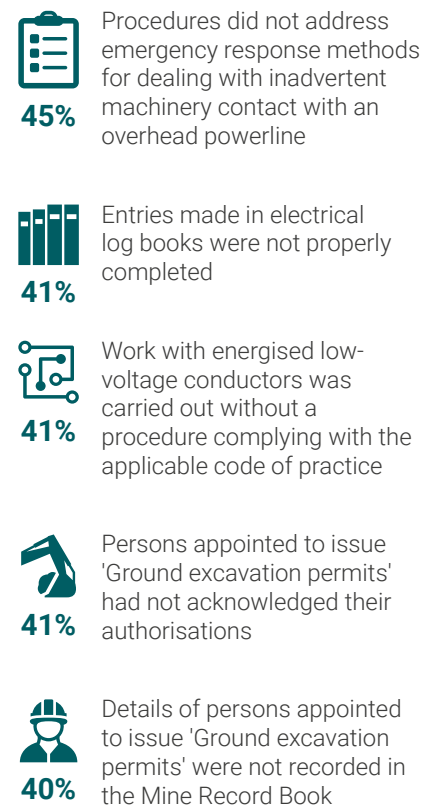
33 of the 298 incidents occurred during **underground operations**



Electric shock by working area (top 3) in 2018



Top 5 non-compliances identified by electrical audits in 2014-18



Some recent examples



Electric shock during operations 27/02/19

An electrician was accessing a bore pump control panel to check the energisation status of disconnected pump tails when a short occurred, resulting in flash burns to his left hand.



Electric shock during operations 19/02/19

A boilermaker received an electric shock to the hand from an angle grinder at a processing plant. The boilermaker removed the power source and was taken to the site medic for assessment and a precautionary ECG. He was cleared to return to work. An inspection found water in the area from workers hosing the filters above the work area in the previous shift. All electrical equipment was tested and found without fault. An investigation was commenced.



Electric shock at workshop 06/10/18

A fitter received an electric shock from welding equipment during maintenance of a load-haul-dump truck (LHD) at an underground mine workshop. The fitter was holding the rear drive shaft guard in place while a colleague tack welded. The fitter was given a precautionary ECG and cleared to return to work. An inspection found grease around the welding area.



Electric shock during operations 31/12/18

A boilermaker received an electric shock from a scissor lift basket at a processing plant. The boilermaker was uninjured. An inspection found the caddy welder was wet and the welder had magnetite slurry inside it. During a work break, wash-down water had wet the welder.



Electric shock at village 23/12/18

A worker received an electric shock moving a fridge at a mine accommodation village. The RCD tripped. An inspection found a television cable hanging behind the fridge under the condenser coil. The fridge movement pierced the cable, livening the conductive components of the fridge.



What are the levels of effect of current on the human body?

AC current (milliamps)	Effect on human body
1	Slight tingling sensation
2-9	Small shock
10-24	Muscles contract causing the person to freeze
25-74	Respiratory muscles can become paralysed; pain; exit burns often visible
75-300	Usually fatal; ventricular fibrillation; entry and exit wounds visible
> 300	Death almost certain; if the person survives, they will have badly burnt organs and probably require amputations



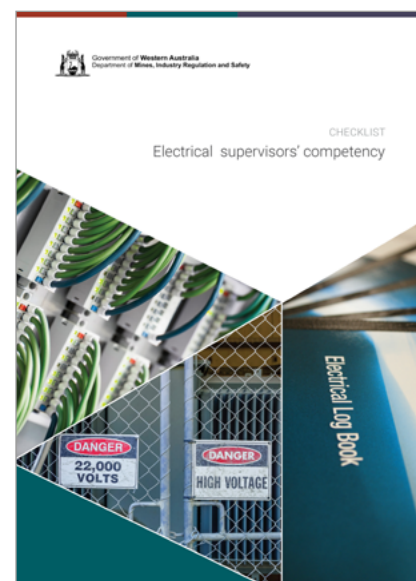
Standard domestic power point is rated at 10 amp



3% of the current rating of a standard power outlet has the potential to kill a person under certain conditions



Electrical supervisors' competency checklist



A checklist related to electrical supervisors' competency is available on the Department's website.