



SAFETY BULLETIN NO: 51

OVERHEAD POWERLINES

Introduction

The frequency of accidents involving contact with high-voltage overhead powerlines raises serious concern and emphasises an immediate need to review current work practices.

Most accidents arise from inadvertent contact by heavy mobile plant operating too close to powerlines. Fatalities and serious injuries have occurred and these outcomes are likely to result from any personal contact with powerlines or machinery affected by them.

Accidents

The last WA mining industry fatality caused by electricity occurred 12 February 1994 and involved overhead powerlines. An electrical contractor failed to isolate the power supply, ascended a power pole and contacted 22kV conductors.

More recently and in the non-mining sector, a building worker at a metropolitan building site was electrocuted 12 January 2000 (and another seriously injured), while handling a suspended load and parts of the crane came too close to 22kV overhead powerlines. On 16 March 2000 the same circumstances recurred at a WA minesite where a contractor sustained very serious injuries while handling a load and the crane contacted 11kV overhead lines.

In the non-mining sector again, an engineer suffered fatal injuries on 19 January 2000 in a Coolgardie outdoor substation after approaching too close to 33kV powerline terminations.

Underlying most serious accident events is usually a past history of 'near-hit' incidents, and in regard to powerlines there have been many. Prompted by recent events, a survey of MOD's accident database was undertaken and showed that mobile equipment contacted overhead powerlines on 47 occasions in the period 1995-99.

The pattern of fatal and serious injuries underlines the fact that any of the 47 incidents referred to above and listed in the following Table could have had much more serious consequences.



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Mobile plant contacts with overhead powerlines

The categories of equipment involved in accidents and warranting particular attention are:

Year	Trucks	Excavator	Drills	Cranes	Misc.*	Incidents
1995	7	1	1	2	1	12
1996	1	1		1	2	5
1997	2	6		1	1	10
1998	4	3	2	3		12
1999	2	2		3	1	8
Total	16	13	3	10	5	47

* Miscellaneous items include lighting plants, cable towers and tree-pruning.

Regulatory requirements

The Mines Safety and Inspection Regulations 1995 include provisions relating to this hazard; (relevant extracts are listed)-

Each responsible person at a mine must ensure that –

5.28(1) (c) *minimum clearances for the movement of vehicles and machinery under and in the vicinity of powerlines are in accordance with AS3007.5; and*

(d) *the following activities are not carried out in any powerline corridor unless the minimum clearances required under paragraph (c) can be assured –*

- (i) *drilling, excavating, loading, hauling or dumping;*
- (ii) *the construction, fabrication, maintenance or storage of buildings, structures, machinery and equipment;*
- (iii) *operation of vehicles or machinery with elevating parts that do not afford the required clearance when fully raised.*

5.18(2)(f) *a person does not work, or operate any plant, in close proximity to exposed high voltage conductors or components unless authorised to do so by a permit issued by a high voltage operator.*

Comments and prevention

These accidents and incidents arise from every-day operation of mobile plant commonly used at most mines, and can be prevented by taking the most ordinary and reasonable precautions.

The starting point is to ensure that the nature of the hazard and its attendant risk are clearly communicated and fully understood. Operating procedures based on a thorough risk assessment process should be developed to control those risks and applied and enforced with due diligence.

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