



**DEPARTMENT OF MINES
WESTERN AUSTRALIA**

SIGNIFICANT INCIDENT REPORT NO. 22

WINDING ROPE DETACHMENT

INCIDENT

An electronic malfunction caused a shaft winding engine drum to rotate in a direction opposite to that selected by the winding engine driver. Consequently, instead of the skip being lowered it moved upwards and was arrested by emergency braking initiated by the winder contrivance and headframe overwind protection devices.

To facilitate recovery of the overwound skip, the headframe limit switches were 'bridged' and the back-out facility engaged. Subsequently the conveyance again accelerated upwards in the 'wrong direction' resulting in a winding rope detachment and the conveyance being held in the headframe jack-catches.

CAUSE

Though the electronic malfunction caused motion in a 'wrong direction', the installed back-out facility failed to permit withdrawal from the overwound position only, as is required by M.R.A. Regulation 15.26.

COMMENTS AND PREVENTATIVE ACTION

Failure or malfunction of electronic components is always a possibility, and therefore circuit design should incorporate adequate arrangements to prevent any hazard from arising as a result of it.

When a conveyance operates a headframe ultimate limit switch, the integrity of the backing-out facility is of paramount importance in safeguarding against the conveyance being driven further into overwind, intentionally or otherwise.

A back-out facility should be manually operated and function directly in the emergency brake safety circuit, so as to immediately apply full emergency braking effort on release of the service brake if conditions for correct direction are not established. Methods of proving correct direction selection vary, and whichever method is adopted, the facility should operate in a manner which is as fail-safe as is reasonably practicable.

If there are any doubts or concerns regarding existing equipment designs, the equipment manufacturer/supplier should be consulted.

J M Torlach
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