

Design for accident safety in mine shafts

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Various accidents in South African mine shafts have focused attention on aspects of accident safety in deep vertical mine shafts. The paper gives brief comment regarding the philosophy adopted for accident safety, and the holistic approach that is used. This includes the engineering design philosophy and the application of several impact resisting and energy absorbing devices, but also layout geometry, in-shaft signalling, and the use of specified procedures.

The paper describes in detail some of the specific devices and measures used to prevent accident situations and alleviate their effects when they do occur. Several of these devices have been tested under close simulation of in-service conditions, and the paper gives typical results of these tests. Testing of other devices is impractical, so the paper describes the theoretical derivation of their behaviour.

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