

Fatal Crush Injury on Exploration Site

Mine Type: All Mine Types.

Incident: A water truck operator sustained fatal injuries when he was crushed between the rear of his water truck and a pastoral property gate. The operator had opened the gate, driven through it and had just closed it when the truck rolled back trapping him. Preliminary investigation, testing and mechanical inspection of the truck has shown that the brakes were ineffective.

Equipment: Heavy rigid truck (1985 Mack Econodyne) and steel farm gate.

Hazard: Caught between a moving (truck) and stationery object (gate).

Cause: Ineffective park / emergency brake system.

Comments:

The use of heavy rigid type trucks in the mining and exploration industry is increasingly common. Most are fitted with S-Cam operated drum brake systems, which are essentially simple and usually very effective in general use (e.g. highway haulage). Issues arise when these brake systems are subject to harsh and aggressive operating conditions commonly found on mines and exploration sites.

Conditions which may be encountered include:

- In operating coal mines, road grime and water transferred onto vehicles is often acidic, attacking brake components and causing premature / accelerated wear, seizure and loss of effectiveness.
- On exploration sites, poorly maintained roads can deteriorate rapidly, generating bull dust which is abrasive and accelerates brake component wear. The fine particle size dust enters and solidifies in the brake booster, causing loss of brake effectiveness.

Recommendations:

When heavy rigid type trucks are used in these conditions, it is imperative that their braking systems be subject to regular, stringent maintenance and testing; which must include dynamic testing of service brakes and appropriate testing of park / emergency brakes. Records must be kept.

Implement procedures which ensure operators carry out pre-start brake checks whenever they take control of a piece of plant.

Sections 108 and 109 of the Mining and Quarrying Safety and Health Regulation 2001, and Sections 66 and 73 (2) of the Coal Mining Safety and Health Regulation 2001 apply to the above recommendations.

Effective defect reporting systems must be developed and implemented, and should contain guidance for operators on defects affecting safety critical components and systems such as brakes or steering, (e.g. immediate removal from service and tag out).

Consider redesign to remove pedestrian interaction with mobile equipment (e.g. remove gates and replace with grids on pastoral properties).

Chris Skelding
Manager, Safety and Health - Central

Contact: Bruce McKinnon, Inspector of Mines, +61 7 4967 0866

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