

Rupture of High Pressure Hydraulic Line

Mine Type: All Mine Types

Incident: After a longwall mine lost electrical and hydraulic power on the face, an investigation found that the pump cart had suffered significant damage due to the rupture of a high pressure emulsion line. The ruptured line damaged the walkway platform (see pictures below) and an electrical cubicle; cutting power to the longwall as the walkway was ejected approximately three metres.

No personnel were working in the area at the time, and no one was injured as a result.



Equipment: Longwall pump sled and adjacent control boxes.

Hazard: Sudden release of energy; high pressure hydraulic fluid.

Cause: Hoses had rubbed together compromising the integrity of the outer casing and steel reinforcing braids.

Comments:

Poor design, including hose routing, hose retention and hose segregation, were major contributing factors in the incident.

No inspection regime was in place for the hoses and other components.

In this instance, a personnel walkway was directly above the site of the hose failure and the section of walkway was ejected. Fortunately no one was in the area or on the walkway. Segregation of personnel from high pressure hoses needs to be considered in the design process.

Recommendations:

1. Ensure the design of hose and pipe layouts eliminates contact and rubbing.

2. High pressure hoses need to be securely mounted and regularly inspected for wear and abrasion.
3. 'Introduction to site' inspections for new equipment need to consider hose and cable layout.
4. Personnel access in and around high pressure installations needs to be kept to a minimum and segregated where possible.

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