



# LONGWALL HYDRAULIC HAZARDS WORKSHOP

16<sup>TH</sup> MAY 2007

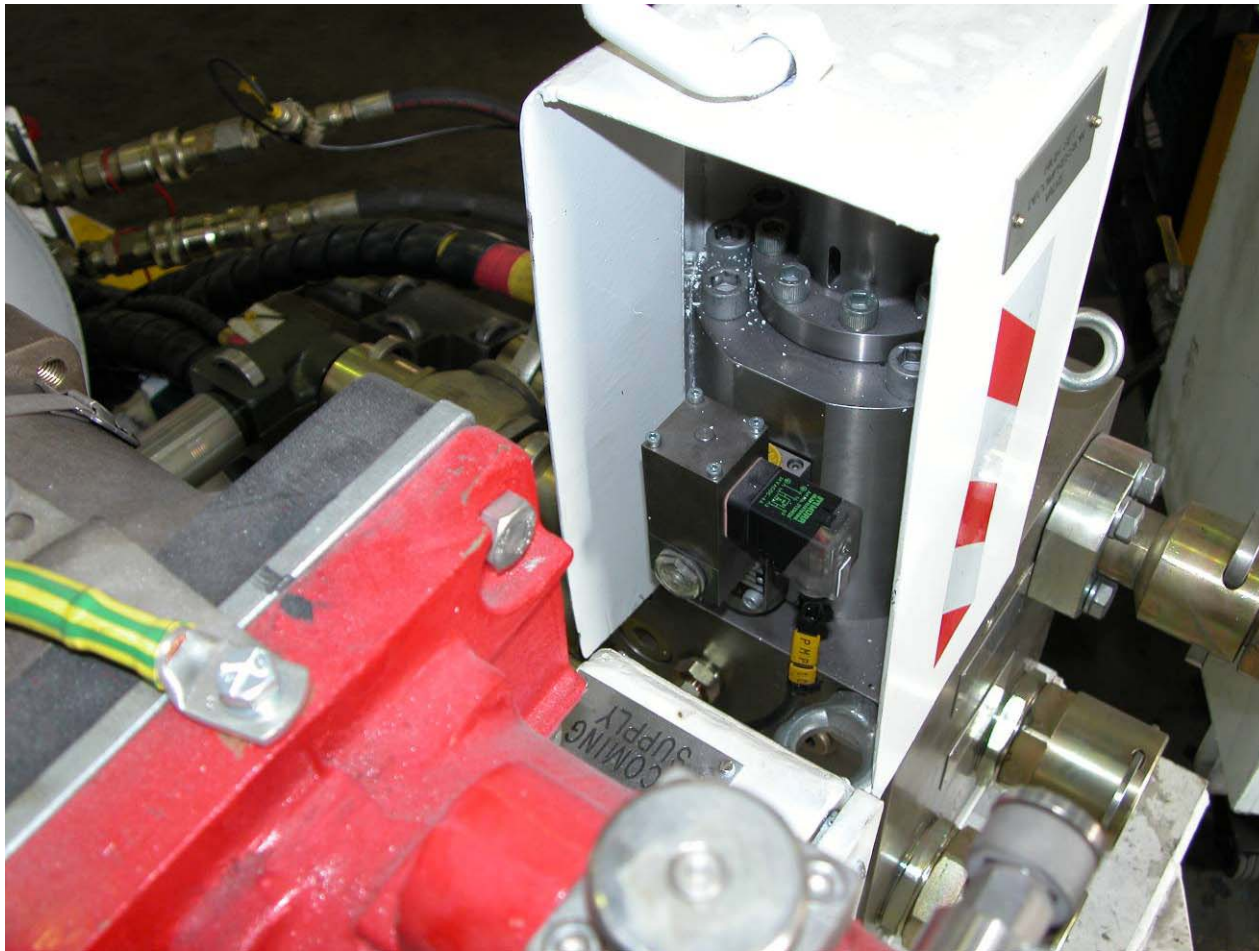


*Available safety feature in pump stations  
- the decompression system*

# SAFETY AND INNOVATION



## DECOMPRESSION SYSTEM



Decompression system fitted to pump station



### ***Risks***

- ***Injury/fatality from high pressure fluid to operators/bystanders***
- ***Equipment damage***
- ***Lost Production due to hose failure and pressure trips (at some mines)***



### ***Causes:***

- ***Large volume of fluid at high pressure in monorail hoses during operation***
- ***Large volume of fluid at high pressure after dump sequence initiated***
- ***Hoses periodically receive shock loading from dump system***
- ***Static pressure spikes may be as high as eight times system pressure.***



### ***Likelihood***

- ***Monorail hose failures have occurred.***
- ***Individual mine occurrences of the dump system operating***



### *Origin*

- **Instituted for Tahmoor due to longer monorail in 2004**
- **Developed in conjunction with DBT and Ampcontrol**



### *Function*

- **A Hauhinco DN32 2 way solenoid valve placed outbye and electrically sequences to relieve the pressure in the monorail to nominally 100bar when dump valve is operated.**
- **Resets to maintain 100bar in the monorail via the PLC**
- **PLC unloads pumps on operation of dump valve**



### *Function*

- **All fluid is returned through the filters to tank**
- **Separate valves for the system pressure and the high set circuit (if fitted)**
- **Manual vent to tank also supplied**
- **Opening/Closing rate is adjustable**



### ***Benefits***

- **May reduce the severity of the consequence (injury/damage/lost time) as the pressure is decreased.**
- **May reduce the likelihood of a failure of the hydraulic components (spikes are not seen at the outbye end of the monorail)**



### ***Benefits***

- **Smoother start up as system start up occurs at less than system pressure**
- **No lost time due to empty monorail hoses (at 100bar)**
- **Good hydraulic practice for a non-operating system**



### *Safety initiative*

- **SES have 5 off operating decompression systems in the market with no issues to date**
- **Can be retrofitted to any longwall dump system (electrical considerations withstanding)**
- **System can be incorporated into a face manifold on the pump station or onto the monorail**







### ***Conclusion***

- **DPI pump station assessment evaluation guide provides conformity**
- **Safety will continue to drive innovation**



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