

# Hydraulic Fluid Incidents

22 Oct 2003



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# Introduction

1 Feb 2002 to 1 Oct 2003

– 12 Incidents

- Longwall 10
- Opencut 2

3 incidents resulted in hydraulic fluid injections ie. For every 4 incidents involving hydraulics 1 could result in fluid injection

# Causal Factors

Hose & Fitting Failure	Isolation
Human Error	Maintenance
Fit for Purpose	Training
Operational	

# Factors that determine severity of an injection injury

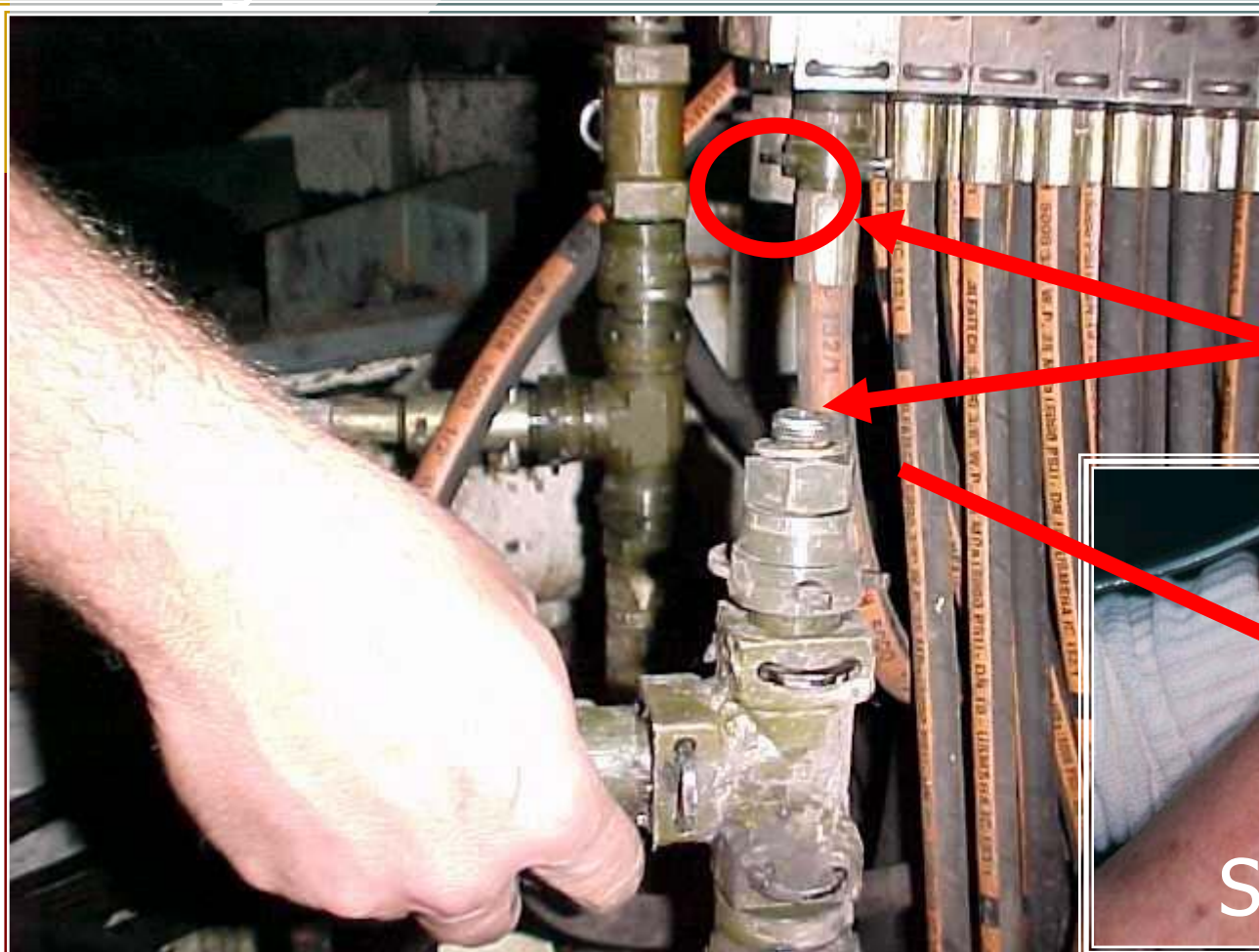
- The type, toxicity, temperature, and thickness of the injected substance.
  - Paint, paint solvent, and paint thinner injections result in 60% - 80% chance of amputation.
  - Grease, oil, and hydraulic fluid injections result in 25% chance of amputation
  - Larger amounts of fluid injected create more pressure on the blood vessels and other tissues.
  - Higher pressures cause more fluid to be injected.
  - The interval between the time of the injury and the time of treatment.

# 12 Incidents

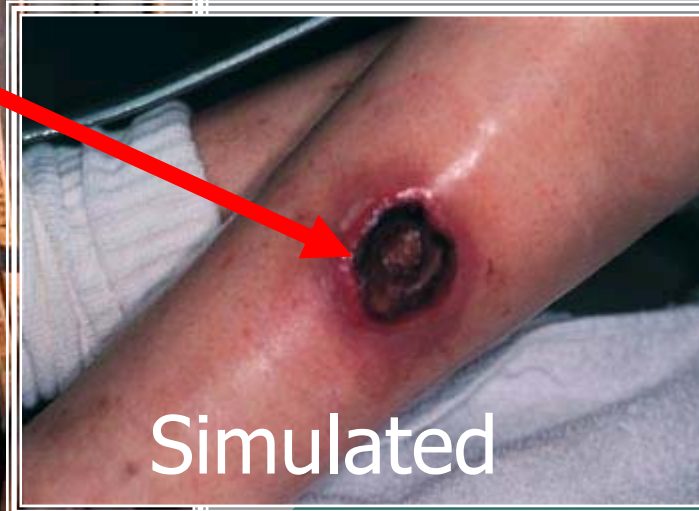
- Information on Hydraulic Incidents
- To assist in developing systems to manage Hydraulic safety
- Warning: Disturbing Pictures
  - Some of the pictures are simulated
  - Indicators on where problems occur

# Incident #1 Fluid Injection in back of leg.

Longwall Bootend valve bank



Failed  
Connector



Simulated

# Incident #2 Fluid Injection in hand.

Opencut

Pinhole



Simulated



# Incident #3 Fluid Injection in buttocks.

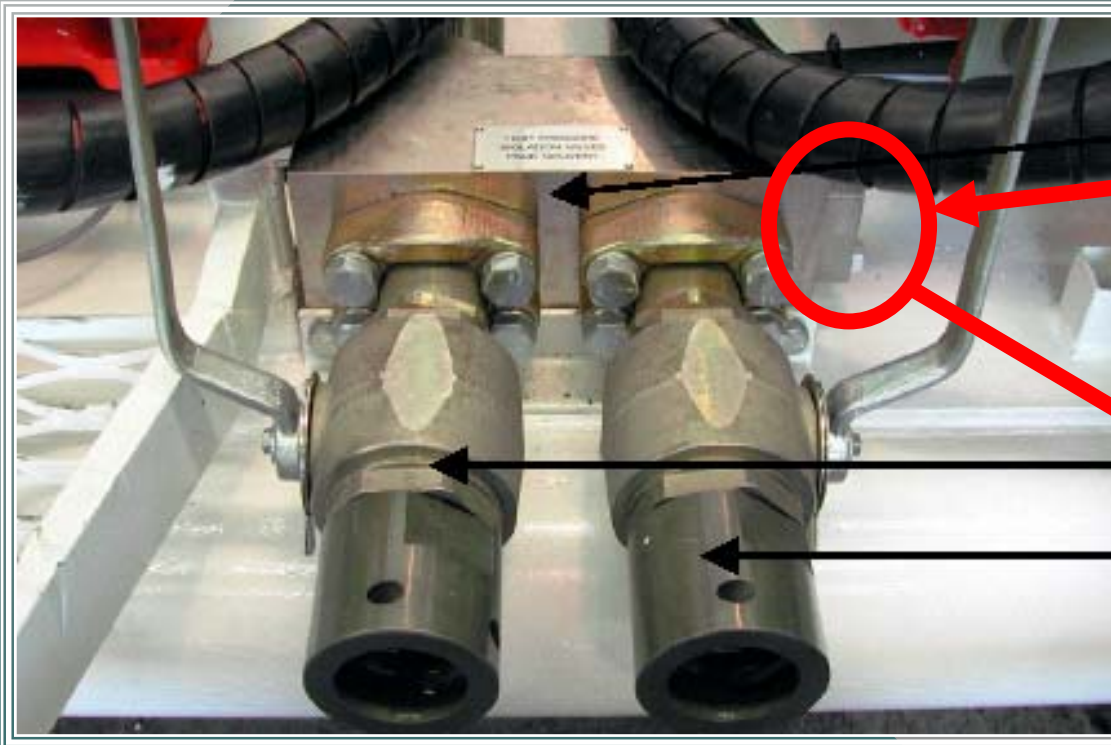
Longwall Roof Support

Hose Corrosion



# Incident #4 Fitter hit with Solcenic fluid at the pump station

## Longwall Pump Station



Removal of Side  
Manifold Plate  
Under Pressure



# Incident #5 Fitter hit with Longwall hydraulic fluid.

Longwall

Human error

Did not follow procedures

Corrosion of hose caused the failure

# Incident #6 Near Miss oil sprayed into the walkway

Longwall



Weld Failed  
Causing  
Spray of fluid

Simulated

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# Incident # / Near miss. Leg raise hose burst

Longwall

Worn outer cover of the hose



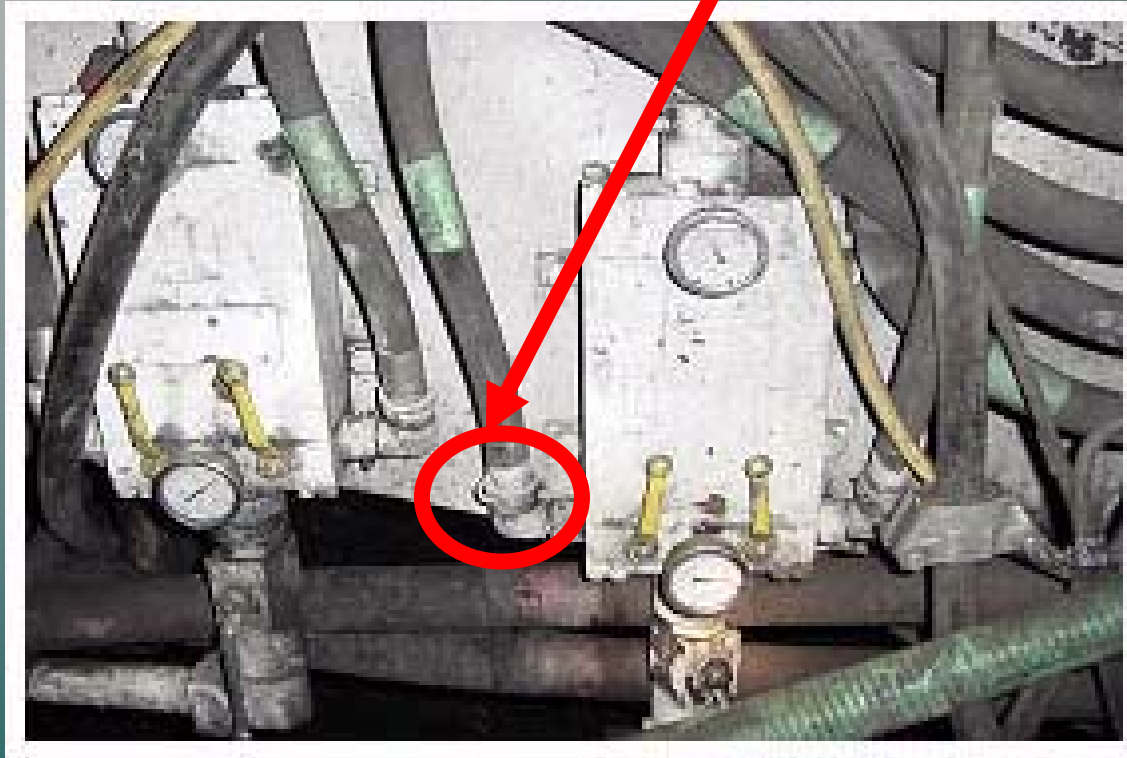
Worn/corroded braiding of the hose

# Incident #8 Fitting failure

Longwall

Fitting Failure?

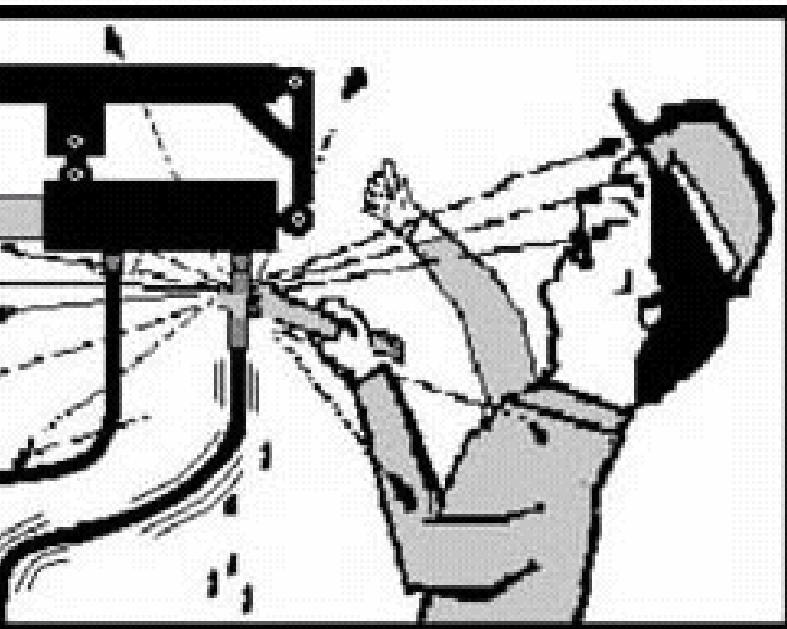
Operator protection?



Simulated  
(not actual  
components)

# Incident #9 Fitter hit by hose under pressure.

Opencut



Simulated

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# Incident #10 Leg Intensification

Longwall



6073 PSI

Rod

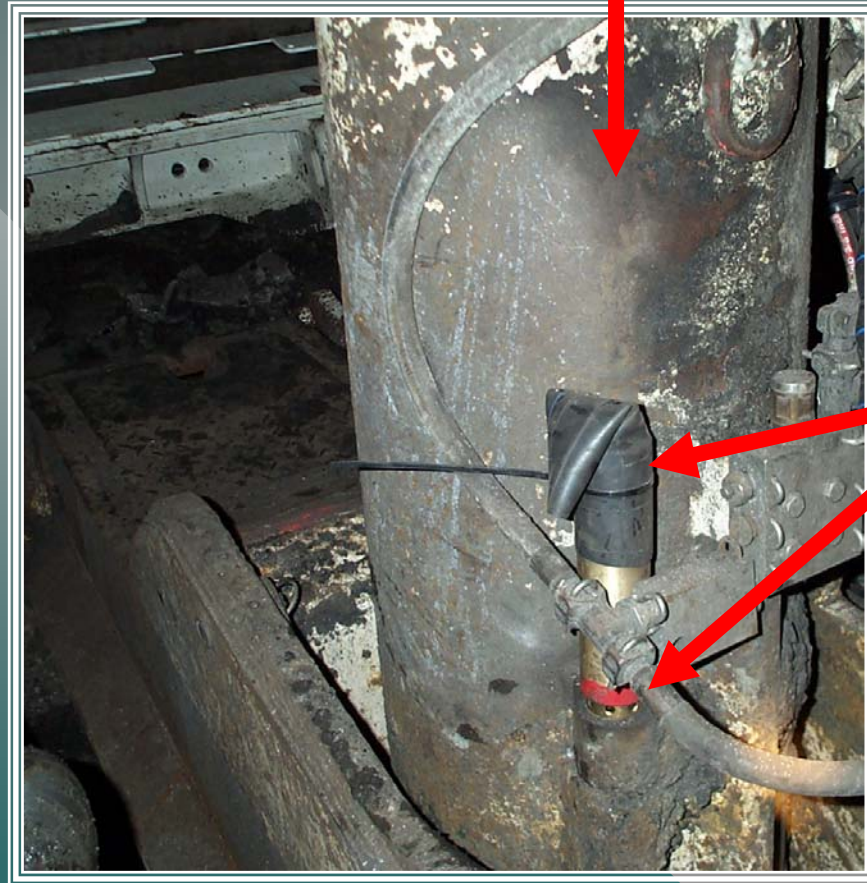
2200 PSI

Simulated

# Incident #11 Near miss Oil/Coal sprayed onto Operator

Longwall

Weighting



Fluid release  
under  
pressure from  
rapid  
yield valve

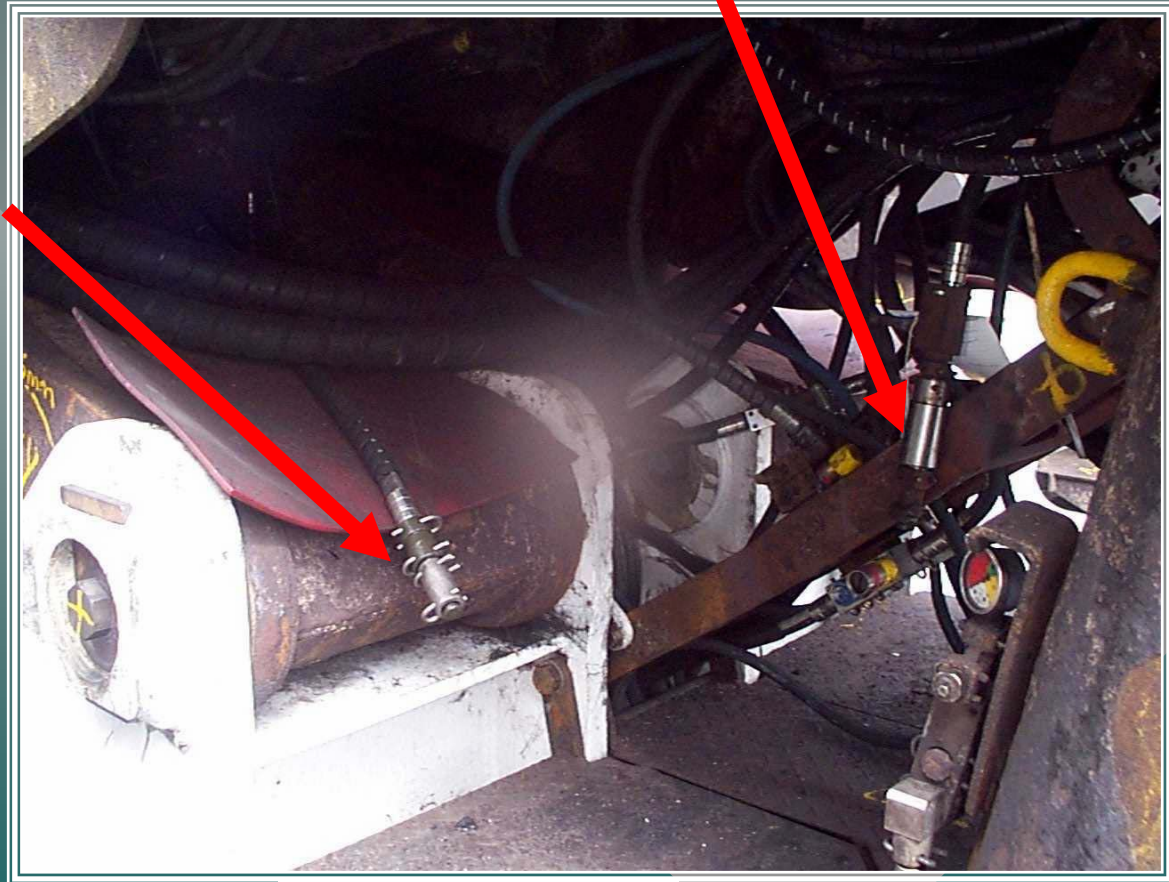
Simulated

# Incident #12 Fitter hit by fluid.

Longwall

Pressure PTO  
Port

Return PTO  
Port Blocked



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# Close

- How should we as a group address these issues?
  - Form steering groups to develop one or more of the following
    - hydraulic safety systems specifications,
    - industry standards, guidelines, etc?
  - Individual responses or suggestions? (not preferred)
  - Both?
  - Status Quo? (definitely not preferred)