

LONGWALL HYDRAULIC HAZARDS

WORKSHOP

16 MAY 2007

1. Presentation by W J Koppe

(Enclosed)

2. Safety Alerts/Notices/Documents

- See enclosed

- See Department of Primary Industries for later notices
<http://www.dpi.nsw.gov.au/minerals/safety/safety-alerts>

- Electronic copies of the following Safety Alerts/Notices Documents are included in the Presentation CD.

| SAFETY ALERTS | |
|-------------------------------------|---|
| SA06-18 | Longwall staple failures |
| SA06-16 | Contractor fatally injured by high-pressure hydraulic equipment |
| SA05-15 | Dangerous uncontrolled Release of Hydraulic Energy |
| SA05-13 | Stored Energy |
| SA04-26 | Near miss fluid injection high potential accident |
| SA04-13 | Injury from high pressure fluid injection |
| SA04-14 | Loss of eye from injection of grease |
| SA04-04 | High pressure air hose burst on drill rig |
| SA02-14 | Injury from high pressure fluid injection |
| SA02-13 | Longwall support cylinder leg failure |
| SA00-02 | Oil injection to left thumb |
| SIGNIFICANT INCIDENT REPORTS | |
| 89/1 | Longwall roof support leg failure |
| 91/2 | Fatality from emission of high pressure hydraulic fluid |
| | Rupture of 32mm brazed staple female branch |
| | Other relevant documents |

3. Guidelines

MDG41 draft (included in the Presentation CD)

See Department of Primary Industries

<http://www.dpi.nsw.gov.au/minerals/safety/publications/mdg>

4. Standards

AS 2671 ≈ ISO 4413

AS 4002.2 ≈ ISO 4021

AS 4024

EN 980

(Contact Standards Australia)

FATALITIES

- Gretley – Hydraulic intensification of chock leg circuit – oil injection
- South Coast – Failed accumulator fitting on start circuit of diesel engine – oil injection
- Angus Place – Disconnected staple fitting on LW hydraulic pump station
- Sanborn Mine, USA – Staple type hose end failed due to mechanical overload between tailgate chocks

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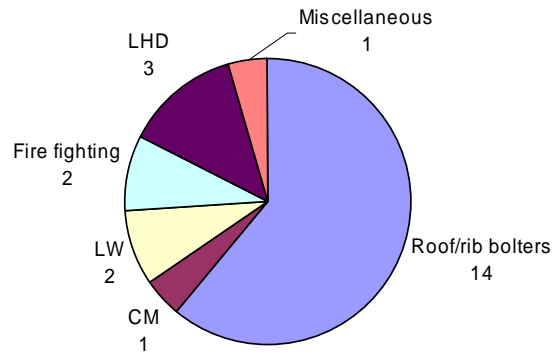
PRAYER FOR THE MINING INDUSTRY:

Our losses shall not be in vain - we will learn
and prevent



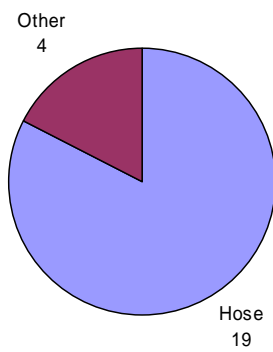
3

MINE "A"
23 notifications in 15 weeks



4

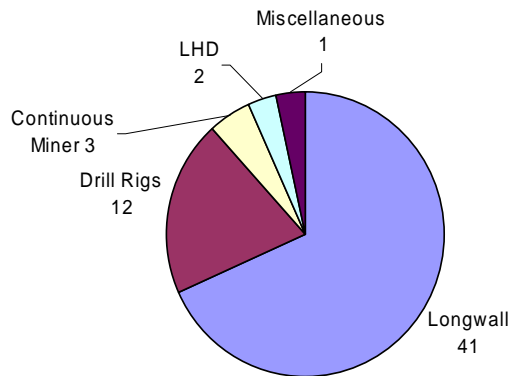
MINE A



TREND: 1.5 notifications per week

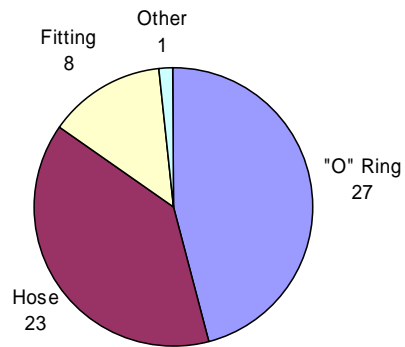
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MINE "B"
59 Notifications in 6 weeks



6

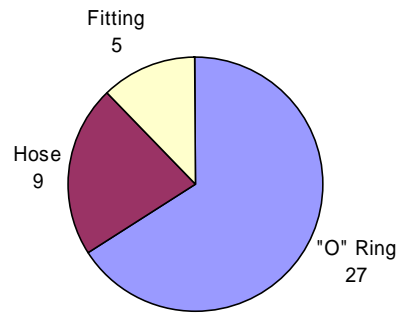
MINE B



TREND: 9.8 notifications per week

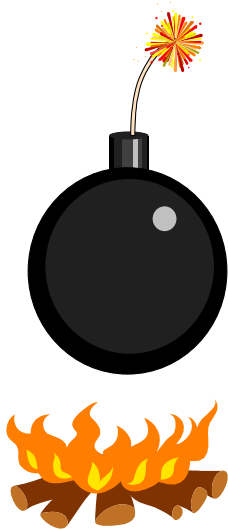
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MINE B 41 - LONGWALL



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TIME BOMB or SAFE



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MANAGEMENT - Issues

- CMHS Regulations – Notification
- OHS Plant Regulations
- MINE
 - Safe Plant
 - Communicate with
 - Supplier
 - Manufacturer
- Supplier/Manufacturer
 - Safe plant
 - Risk assess
 - Investigate
 - Limitations
- Production Delays

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SYSTEM MANAGEMENT

- IDENTIFY
- TREND
- CORRECT
- REVIEW

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HOW? Examine



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- **FITTERS REPORTS**
 - Standard document
- **COLLECT** failed components
- **INVOLVE** suppliers
- **SUPPLIER IDENTIFICATION**
 - Staples
 - Fittings
 - Hoses
 - Hose sleeves

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- **TESTING**
 - factors of safety
 - fatigue life
 - fit for purpose
- **SPECIFICATION**
 - not just to a standard
- **TRAINING**
 - tradesmen
 - engineers
 - store
- **STANDARDS**
- **GUIDELINES**

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LEARN FROM OTHERS

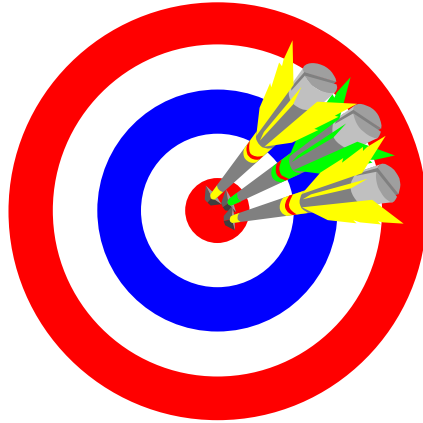


- Experience is a hard teacher,
First comes the test - then the lesson
- Living at risk is jumping off the cliff and
building your wings on the way down



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TARGET AREAS



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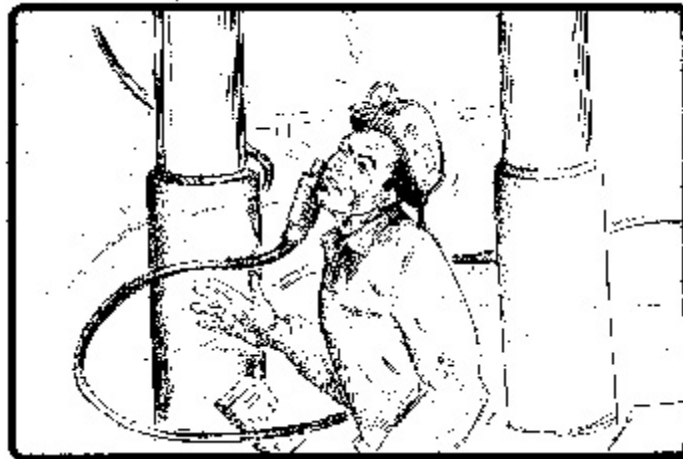
TARGET

- Hoses
- Fittings
- Isolation
- All failures

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SANBORN CREEK MINE

COAL MINE FATALITY - On Monday, December 4, 2000, a 37 year old longwall tailgate shearer operator, with 13 years mining experience, was fatally injured when he was struck by a broken high pressure hydraulic line. The victim had completed a mining pass and was standing on the toes of the No. 76 shield when a high pressure hydraulic fitting broke in half allowing a fifteen foot length of line to swing wildly in the shield walkway. The line was attached to the underside of the No. 74 shield above the walkway. The 1-1/4 inch, 4500 psi. line, with approximately 15 pounds of couplings attached to the end, struck the victim in the face and head. A second miner in the general area was knocked down and received minor injuries.



Best Practices

- All high pressure hoses should be guarded and/or secured against uncontrolled whipping motion in the event of a failed hose or fitting.
- All high pressure hoses should be located to minimize the risk of exposure to miners from failed fittings and/or rupture.
- Safety chains or suitable locking devices should be used at connection points of high pressure hoses.
- When possible, minimize the amount of connection points on high pressure hoses where miner exposure is the greatest.

This is the 34th fatality reported in calendar year 2000 in the coal mining industry. As of this date in 1999, there were 31 fatalities. This is the 10th accident classified as machinery reported in the coal mining industry in 2000. As of this date in 1999, there were 4 fatal accidents classified as machinery reported in the coal mining industry.