MDG35

Ergonomics of Underground Coal Mining Equipment 2006

Coal Mines Underground Drill Rigs

Paul Drain (Department of Primary Industries)

U/G Drill Rig

U/G Coal v O/C & Metal Mines

- 23 Reportable Incidents (U/G Coal Mines)
  - 1 Fatality
  - 8 Serious Bodily Injury (SBI)
  - 11 Unplanned Movement (UPM)
  - 3 High Potential

- 22 Incidents Reported (O/C Mines & Metal Mines)
  - 4 SBI
  - 5 Out Of Control (OOC)
  - 10 High Potential (some operational issues)
  - 3 LTI

NSW Department of Primary Industries

MDG 35  --- P
PAUL DRAIN, MSO – MECHANICAL

Slide 1

Slide 2

Slide 3
Injuries
Source: Coal Services 1999 to 2004

347 Accidents Total with 55 rib bolting accidents

Nature of Injury - Ergonomics

Nature of Injury
- Sprain & Strains
- Pulled or Twisted
- Jarring
- Tendonitis
- Bruising

Part of Body
- Elbow
- Shoulder
- Neck
- Lower Back
- Upper arms and limb
- Knee

Nature of Injury - Ergonomics
**Part of Body - Ergonomics**

- Upper back (14%)
- Lower back (16%)
- Shoulder (22%)
- Knee (9%)
- Neck (8%)
- Elbow (9%)
- Face/jaw (3%)
- Finger (1%)
- Foot (2%)
- Forearm (3%)
- Hand (9%)

**MDG35 Original**

- Developed and published in 1996
- Prescribed methods
- Control directions and forces
- Injuries still occurring and frequency increasing
- Increase in number of rigs, increase exposure
  (From 2000 to 2006 Increase of Miner, Rig & Rib equipment by ~20%)
- Committee reformed in 2004

**MDG35 Committee**

- Members from industry (coal mines)
- Union (CMFEU)
- Manufacturers (DBT, Joy, Hydramatic, VAMT).
- DPI
- Specialist in their field (Ergo, strata etc)

- Challenges (members changing, culture, commitment, manufacturers different standards)
Bolting Hazards

- UPM of the drill rig entrapment
- Inadvertent operation of controls
- Interaction of moving rotating equipment
- Poor Ergonomics
- Unguarded moving parts
- Roof falls (unsupported strata)
- Remote Control equipment
- Poor Isolation methods
- Crush injuries (human error). etc

Draft MDG35

- Principles to keep employees safe and review against AS4024.1
- Improved Ergonomics
- Two handed controls
- One operator per bolting rig
- Suitable guarding
- Eliminate pinch points
- Stop inadvertent operation
- Operators protection TRS & Canopy

Section 63 - ISSUES

1. Controls can be accidentally bumped
2. Can be operated by one hand whilst other hand (or body) is in a dangerous position.
3. Can be operated by one person whilst another person is in a dangerous position
Future

Plan to reconvene the MDG35 Committee to review some changes and some areas identified while attempting to implement this guideline.

Mission
- Continuous Improvement

Vision
- Towards automation

Any Questions