

MDG35

Ergonomics of Underground Coal Mining Equipment
2006

Coal Mines Underground Drill Rigs

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NSW DEPARTMENT OF PRIMARY INDUSTRIES

U/G Drill Rig



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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

DPI Database (1999 to Present)

■ 22 Incidents Reported (O/C Mines & Metal Mines)

- 4 SBI
- 5 Out Of Control (OOC)
- 10 High Potential (some operational issues)
- 3 LTI

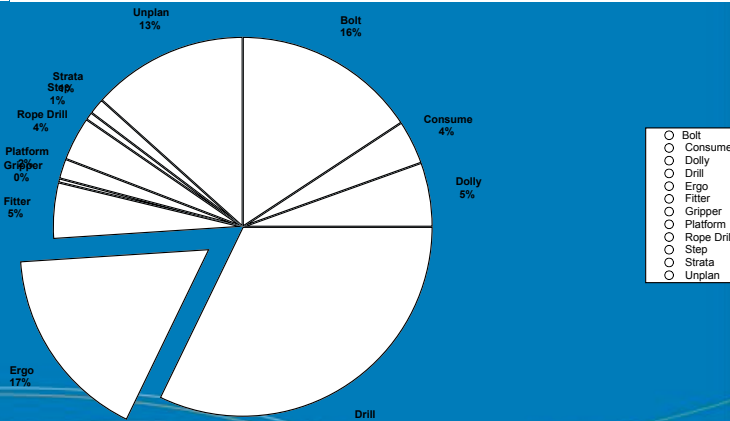
■ DPI Database (1999 to Present)

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Injuries

Source Coal Services 1999 to 2004



347 Accidents Total with 55 rib bolting accidents

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Ergonomic Related Injuries

Nature of Injury

- Sprain & Strains
- Pulled or Twisted
- Jarring
- Tendonitis
- Bruising

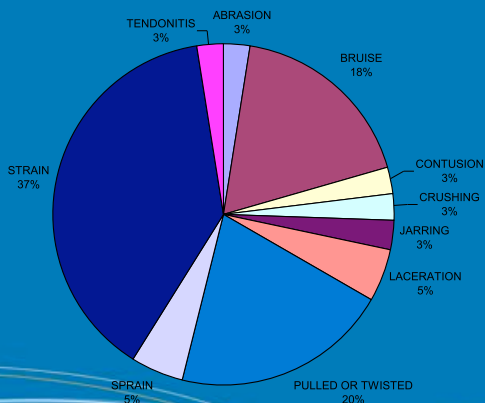
Part of Body

- Elbow
- Shoulder
- Neck
- Lower Back
- Upper arms and limb
- Knee

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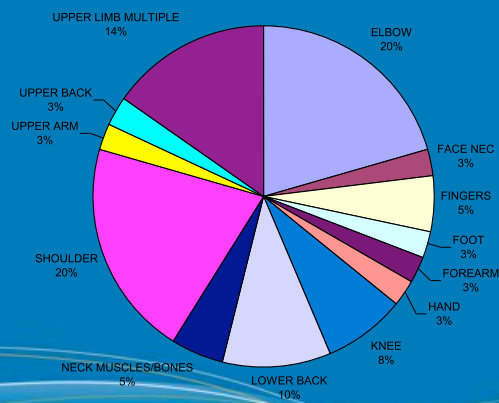
Nature of Injury - Ergonomics



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Part of Body - Ergonomics



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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

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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)

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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