



**DEPARTMENT OF MINERALS AND ENERGY  
WESTERN AUSTRALIA**

**SIGNIFICANT INCIDENT REPORT NO. 44**

**ROCKFALL – FATAL ACCIDENT**

The following is an extract from a significant incident report received from the department of Mining and Petroleum, Papua New Guinea.

**INCIDENT**

An underground miner was killed when a rock weighing approximately 4 tonnes and measuring 1.6 metres long x 1.4 metres wide x 0.5 metres thick fell onto him from the back of a hanging wall drive. He had been barring down at the face and was standing on top of the muck pile.

**CAUSE**

The rock and ground surrounding the heading was composed of black sediments, interlaced with some calcite vein stringers and slickenside planes, considered as heavy ground.

The whole development area, except the development heading blasted on the previous shift itself, was intensely roof and sidewall bolted using cone and shell type bolts, split sets and cable bolts. The steel cable bolts were 6.5 metres long, doubled up, having a combined breaking load of 25 tonnes and put in on a “as need” basis. The cone and shell bolts were 2.2 metres long and placed on a 1.1 metre square pattern. The split set bolts were 3.5 metres long placed on approximately a 1 metre by 1 metre pattern. The ground has been wire meshed in areas where slabbing was intense. Roof bolting had been installed up to the face preceding the blast.

No modifications had been made to the standardised drill round and opening size used throughout the mine, to compensate for poor ground conditions.

Black sediment has a fairly low compressive strength and “sounding” is difficult to detect.

The deceased was standing under an unsupported area of heavy ground, near the face.

**COMMENTS AND PREVENTATIVE ACTION**

Good drilling and blasting practice when mining through areas of known bad ground will minimise damage to the excavation perimeter, allowing the ground to be more self supporting.

Where poor ground is indicated consideration should be given to the following in an effort to reduce the associated hazards:

- Change direction of the development to bypass the poor ground.
- Reduce the length of the round.
- Use low impact explosives particularly in the perimeter holes.
- Change the blasting pattern eg. smooth wall blasting.

All persons who work underground should be inducted in the dangers associated with areas of bad ground, and trained in the recognition of bad ground and in barring down procedures.

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**SAFETY AWARENESS SAVES LIVES**