

**Safety In Mines Research Advisory Committee  
Project Summary: GEN801**

<b>Project Title:</b>	<b>Investigate a possible system for “making safe” (60pages)</b>		
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<b>Report Date:</b>	<b>February 2002</b>	<b>Related Projects:</b>	<b>GEN801</b>
<b>Category:</b>	<b>Gold and Platinum</b>	<b>Applied Research</b>	

**Summary:**

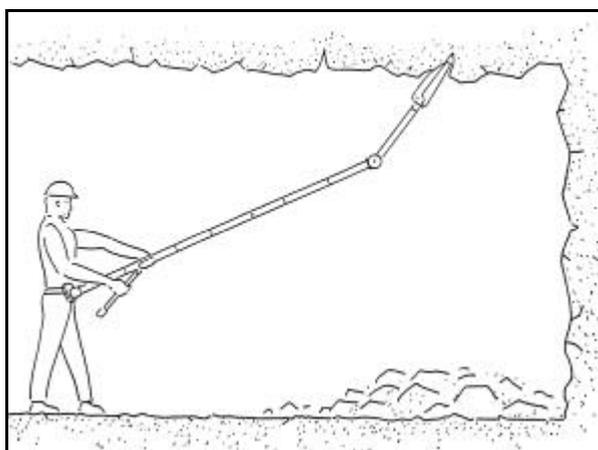
The primary output of this phase1 of the project was to develop a list of alternative designs for “making safe” that may be considered by SIMRAC. Workers responsible for “making safe” in mines will use the device or system, which has to be safe and reliable and reduce the exposure to fall of unsupported ground hazards, and therefore saving life and limb. This project looks at the actual “making safe” and not the detection of loose rock, which is addressed in projects GAP 820 and GAP 822. During phase 2 of the project a working prototype or prototypes will be developed for underground evaluation.

A significant proportion of rockfall accidents occur during re-entry into a workplace, when the initial inspection and “making safe” procedures are carried out to stabilise the rock before work in the area begins. The reason is that “making safe” is one of the most stressful and dangerous activities an underground miner can undertake. The operator often is unable to work at a safe distance and is sometimes forced to work directly underneath unstable rock when attempting to “make safe”. The equipment currently used is archaic and there is a need to devise a simple system to enable operators to stabilise the rock effectively and efficiently from a safe distance before work begins in the area. Furthermore, current methods are physically demanding on the operator, which can lead to poor concentration, improper completion of tasks, and accidents.

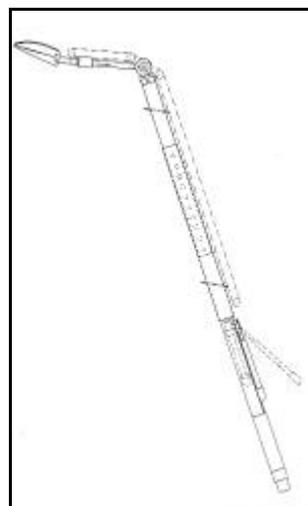
A literature and international survey on existing systems was conducted. During a problem survey different mines (gold, platinum and coal) with different stopping widths were visited to investigate and identify the problem. A functional analysis was done from which a specification was drawn up. Different concepts for “making safe” were generated and evaluated against the system specifications. These concepts were presented to SIMRAC.

The ideas developed during this project are to be used by workers responsible for “making safe” in mines. The equipment is designed to reduce exposure to falls of ground, and to assist in reducing stress and fatigue of the operator. The concepts chosen as the preferred concepts are:

- A “lightweight pinch-bar” where the bar is manufactured of composite materials.
- “Mechanical jaws”: A hand held and operated mechanical system, which makes use of hydraulic pressure activated jaws to pry rocks loose.



“Mechanical jaws” in operation.



Layout of “mechanical jaws”.

**Conclusions and Recommendations:**

It is recommended that both preferred concepts, a “lightweight pinch-bar” and “mechanical jaws” be further developed into prototypes, which can be tested and evaluated.