

# SAFETY ALERT



## UNPLANNED MOVEMENTS OF LONGWALL CHOCKS

### INCIDENT

In an unplanned movement, two longwall chocks (95 & 96) started to lower, advance and set (they were stopped by the shearer driver). Chock 105 completed a lower and advance, and a 'pan push' sequence overtook the shearer for 10 chocks.

The prime operating control had malfunctioned earlier in the shift, and the system computer control (SCC) screen was lost at times.

### INVESTIGATION

The unplanned movement could not be repeated in a controlled test at the mine. The chock interface units (CIUs) and SCC were taken to the manufacturer for benchtop assessment where the incident was able to be repeated.

**IMPORTANT NOTE:** During the assessment, several other failure modes came to light in the software system control. There were sequences where the pre-start alarm was *not* enabled, and the programmed settings defaulted to over 50 chocks for prime. The manufacturer and the mine were *not* able to readily access software safety change control documents.

In the past year, there have been a number of other unplanned movements of longwall chocks. These have been caused by stuck switches on the CIU, or solenoids failing through either bypassing or loss of ingress protection, leading to short circuits in the CIU.

### RECOMMENDATIONS

- Mines review their longwall systems for the failure modes noted in this safety alert. Where failure modes are identified that can cause unexpected movement of longwall equipment, the associated risks should be assessed and dealt with in accordance with Clause 6, Coal Mines (General) Regulation 1999.
- Mines begin a program to identify ALL failure modes and operational requirements of their longwall systems that can cause unexpected movement of equipment. The risks associated with the unexpected movement should be assessed and dealt with in accordance with Clause 6, Coal Mines (General) Regulation 1999.

**FURTHER INFORMATION:** Guidance on systematically dealing with safety related matters of mining equipment controlled by programmable electronics is available from the National Institute of Occupational Safety and Health (NIOSH), USA. The information is titled "Programmable Electronic Mining Systems: Best Practice Recommendations". The Web address for NIOSH is:  
<http://www.cdc.gov/niosh/publistd.html>