

SAFETY ALERT

Water inrush from Raisebore Hole

INCIDENT

An inrush of water and mud occurred at the base of a raisebore hole that was approximately 270 metres deep and 5 metres in diameter.

The inrush occurred on night shift when bogging operations were being undertaken at the base of the raisebore hole. The inrush material flowed into the mine workings placing a number of persons at risk.

Fortunately no one was injured during the event, however, there was potential for fatalities and/or serious injuries to occur.



The photo shows the rear view of the bogger that was removing the wet cuttings from the base of the raisebore hole at the time of the inrush.

Note the inrush material visible on the machine up to the enclosed operator cabin.

CIRCUMSTANCES

A constant flow of ground water was entering the raisebore hole during reaming. As a result, a quantity of mud and water had built up.

Prior to the incident it was observed that the raisebore hole may have been choked off or partially blocked.

A Job Safety Analysis (JSA) was carried out during the shift prior to the inrush occurring.

The JSA identified the risk of an inrush occurring, however it failed to identify adequate controls to minimise the risk to persons, especially persons working at lower levels of the mine.

RECOMMENDATIONS

The risk of an inrush within a mine is a prescribed hazard in the *NSW Mine Health and Safety Regulation 2007*.

A risk assessment is therefore required and effective controls are to be established (using the hierarchy of controls) taking into consideration all possible scenarios regarding potential inrush.

It is recommended that when raiseboring operations are taking place that the risk of an inrush and its consequences are minimised by considering the following control measures:

- Plan and prepare for the use of tele-remote bogging at the base of the raisebore hole in case a blockage of the raisebore hole takes place.
- Drill drain holes into the raisebore hole to allow effective drainage and monitoring of water flows from the raisebore hole. Drain holes should allow water to be released if it builds up in the raisebore hole due to a blockage.
- Establish clear procedures to decide at what height of cuttings and circumstance at the base of the borehole would trigger the decision to carry out tele-remote bogging and/or a JSA.
- Always cease reaming well before the cuttings have built up to choke off the brow. Also if the brow is choked off then reaming must cease.
- Maintain a reconciliation of the tonnage reamed against the tonnage bogged. However, be aware of the inherent errors that can occur including human reporting errors as well as when water is present as amounts of water and material can vary a great deal from bucket to bucket.
- Conduct regular inspections in a safe manner, by competent persons, at the base of raisebore holes during reaming operations to assess the level of build up of the cuttings and to be sure the established safe work procedures for bogging are being strictly followed.
- Where possible take appropriate measures to prevent any peripheral water from entering the raisebore hole.
- Establish a 'no go' zone at the base of the raisebore hole except for bogging activities.
- If circumstances change, a JSA should take place immediately to identify any new hazards and assess the risks associated with the change. The JSA should also take into account the potential risk to persons working at lower levels of the mine should there be any potential for an inrush to occur.
- If circumstances have changed, appropriate communication should take place with all persons that may be affected in the mine so that any new control measures are well known and understood by everyone.

- Provide information and training for all persons involved with bogging at the base of the raisebore hole so they are aware of the hazard and potential risk of an inrush should it occur.
- Reference MDG 1030 *Guideline for Raiseboring Operations*, available for downloading at the Industry & Investment website:
<http://www.dpi.nsw.gov.au/minerals/safety/publications/mdg>

NOTE: Please ensure all relevant people in your organisation receive a copy of this Safety Alert, and are informed of its content and recommendations. This Safety Alert should be processed in a systematic manner through the mine's information and communication process. It should also be placed on the mine's notice board.

Signed



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MINE SAFETY OPERATIONS BRANCH
INDUSTRY & INVESTMENT NSW

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