

COAL AND GAS OUTBURST COMMITTEE
HALF DAY SEMINAR – Wollongong 22nd June, 2011

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Editor’s Note: Please refer to the University of Wollongong Mining website at the following address for a better, colour view of the presentations.

<http://www.uow.edu.au/eng/outburst/>

Research and publication

Presentations

Jeff Buchanan, Training Officer, Southern Mines Rescue Station

Questions and Discussion

Bob Gordon, Appin Colliery Area 9 – How far away are we from having virtual training available and as a competency assessment tool?

Jeff – We need a solid platform for training people and to assess their competence. We can do it, but will need participation by the industry. We have iPods we can set up with the Draeger gas detector. They relate to gases as they see it so what you see in the hand is real time. We use Ventsim computer software to judge the distance of smoke and the time smoke came into the panel, we normally ventilate the panel and the rate it would travel up the returns.

The technology advances, we have three iDome VR simulators at each rescue station to click individuals in, and it may be with the assistance of industry experts who would be your current competent miner drivers to work with us to develop the program and help assess the operators.

Peter Robbins, Southern Mines Rescue Station - Mines Rescue have been approached by a mining company and there has been work done towards continuous miner and shearer driver training with the aim of making the consol mimic the actual radio control used by the operator. That work is under way, but is commercially sensitive.

Jeff – We require assistance from the industry for direction. We are working with the coal miners of the future. Request from Bruce Dowsett VRT, the current VR outburst training module is captured in two scenarios UNSW and VR Space. This is used for new inductees, contractors and refresher training. We are currently modelling our third generation VR outburst training module scenario with QinetQ which needs to capture the “last line of defence” at the face i.e. signs and indicators.

We need to consult with industry to get good photos, information etc that would assist in our development. We now have greater flexibility eg. Change gas levels, etc and will capture an outburst event under remote mining conditions in a gate road development. The second part is to demonstrate the use of Management Plans and preventative measures. We also want to check on currency and updated methodology, contact volunteers who can provide photos and information so we can provide a module that achieves their training needs.

At a recent Mines Rescue Competition involving International and Australian teams, the following scenario was put to the captains. What would you do if you encountered smoke and the gas detectors indicated 300 ppm CO? The expectation was the captain would have his team to put on their rescue suits, which they did, then make their way to the crib room to make a telephone call, which they all did. Using the mine plan they had to find the best way to get themselves out of the smoke and onto the intake side of the fire. The expectation was they would then make a phone call and try to ascertain the source of the fire; this was done by

all teams. Then there was a fire hydrant in the corner of the gallery and a small fire depot which could be seen by the men when they walked into the gallery. They then found a transformer on fire and they were expected to attempt to extinguish the fire. They initially applied CO₂ extinguishers, but we wanted them to apply water to the fire because the CO₂ extinguishers were unsuccessful. Only one or two teams out of the 16 failed to make a phone call to have the power disconnected on the surface. That is how we work, we try to put the team into a hazardous situation and assess how it is handled.

Peter Robbins, NSW Mines Rescue Pty Ltd

Questions and Discussion

Bob Gordon, Appin Colliery Area 9 – I was amazed at the amount of flames produced from the shaft when the seam contained around 4 - 10 m³/ tonne. I was surprised that the gas supply to the flames seemed continuous.

Peter – I don't know exactly what was burning. Reports indicate the mine was running approximately 0.5% general body in the up-cast shaft at about 125 m³/ sec ventilation quantity. A limited goaf had been formed to the rise and the in-seam exploration holes were producing some gas which was captured by the gas drainage pipe range.

John Coll, West Cliff Colliery – Do they normally have mines with only one means of egress in New Zealand?

Peter – Sorry, I cannot answer that as a general comment. The NZ legislation is different from NSW. They did have a ladder way in the up-cast shaft. The drift was in stone and expected not to have roof falls or stability issues.

Greg Knight, Appin Colliery – If there were any long-holes in the mine and standpipes, could these have provided a source for the gas supply to the fire?

Peter – I don't know. The holes were naturally ventilating to a gas drainage range which went back through the pit bottom area. The line may have been broken by the explosion/s and this break could have continued to supply gas to the fire. Remember, it is up to a 10 m thick seam, so there is a lot of coal to produce gas.

Greg Knight – What are your thoughts now on tube bundle gas monitoring?

Peter – Tube bundle is good with its advantages and disadvantages and is one option for monitoring mine ventilation systems but not the only one. Pike River mine was in the early development stages and only had a small area of workings within the seam. The farthest workings were some 500 – 600m from the end of the drift, so it is not a big mine and they did have some real time gas monitoring points around the mine

Some people have speculated that the Pike River mine should have had tube bundle installed. Personally I can't comment. However we need to remember the size of the mine. Consider there is around 2.3 km of stone access drift from the portal. A number of South Coast mines had a similar situation when they initially started, ie a drift of around 1.6 – 1.8 km, a shaft and a small pit bottom area in coal. You could ask the question whether those mines would

have installed a tube bundle at the start and you would have to ask if the size of the initial part of the Pike River mine warranted tube bundle.

Bob Myatt, NSW Government Mines Inspector - I would like to ask the mine managers if they could think about sealing their own mines if necessary, to avoid a repeat of the Pike River experience. It would be easy to have the necessary materials available. Considering there is a MDG6002 guideline available, in draft form. It would be good for mines to conduct an exercise to see if they could overcome the issues raised in your presentation?

Peter – There have been two events recently which have identified that not only do you have to be able to seal a mine, but you also have to be able to check that it is actually sealed. Both events have involved ignitions of gas, here and in New Zealand. Both occurrences have shown relatively rapid success in sealing the big areas, but all the small cracks and gaps require a lot of time to be chased and sealed. When the place is sealed properly the mine atmosphere tends to go inert quickly, especially if additional artificial inertisation is being carried out. But when the seal leaks, it will be a struggle. We need to ask how do you effectively seal around a cage etc. in a shaft?

Bob Kininmonth, Chairman Gas & Coal Outburst Committee – From the point of view of the Committee, the Pike River explosion is an example of why we have continued these bi-annual seminars. We should never become complacent. Unless we do things properly and remember to do them properly, we may end up with something similar to Pike River. We have had similar problems in Australia. It is not just a New Zealand problem.