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ADDENDUM

Outbursts in Leichhardt Colliery: Lessons Learnt – John Hanes

Editor’s comment: I have taken the liberty of including this paper from 1995 as a tribute to the two young men killed by a large outburst at Leichhardt Colliery 40 years ago in December 1978, when outburst management was very different. (Enlarge it to improve legibility). Was it an outburst or a coal burst? Many different terms were tossed about mainly for political reasons, but it was caused by a combination of gas pressure/content and stress.
Appin Mine 708D Pressure Bumps

Roger Byrnes, Superintendent Geotechnical Services, Illawarra, South 32

Questions and Discussion

Mark Blanch, Palaris – What is the nature of the structure that runs down the right hand side of the drive?

Roger – I think it is mainly strike-slip. There is very little vertical displacement. But it is difficult to give a definitive interpretation as the structure varies a lot. There was a lot of en-echelon structure. It has vertical dip. Plenty of sub-parallel striations, plenty of slickensiding and mylonite. Where it was intersected in 25 and 26 cut-throughs, there were definite slickensided planes trending at 90 degrees to the main structure so it is quite complicated.

Mark – Did the across panel drilling detect the structure?

Roger – Yes, there was boggy drilling at the structure. Boggy drilling is indicated on the plan as purple lines.
Background on Outbursts and Considerations Regarding Coal Bursts -

Chris Harvey, Outburst Seminar Committee

No Discussion
Remote Mining, Longwall Development

Darryl Parry, Komatsu

No Discussion
Remote Longwall Mining

Brendan Nolan, Komatsu

No Discussion
Coal Burst, Regulatory Approach to Managing the Hazard

Bill Barraclough, for Gavin Burns, NSW Planning and Environment

No Discussion
Metropolitan Colliery Gas Drainage

Tyler Stephen, Gas Drainage Superintendent, Metropolitan Colliery

Questions and Discussion

Yvette Heritage, SCT – Question regarding failed cores and high Q3 results

Tyler – With sitting around the top of the threshold, typical results are Q3 runs around 5 to 6, Q1 approx 0.5 - 1 and Q2 0.5 – 2 m3/t. The total gas is predominantly the Q3 portion.

Yvette – Have you had any events in the area?

Tyler – Not in the 300 Series, our last event was on the LW in LW27

Ken Cram, Outburst Seminar Committee – The gas is predominantly CO2. Do you vent the drained gas directly to atmosphere?

Tyler – Yes, we vent straight to the atmosphere. When we transition back to a CH4 environment, we plan to flare the gas.

David Webb, Glencore – When you refer to Q3, do you mean Q3 fast desorbed and not true Q3?

Tyler – I was referring to fast desorbed Q3, which we believe is drainable, which has been supported by a report from Palaris.

Mark Blanch Palaris– A review of all data across the 300 series longwalls indicates the seam is drainable irrespective of the Q3 component in the gas content results. There seems to be a misunderstanding of the relevance of Q3 in the industry at times with some confusing the reported Q3 component of the fast desorption test result with residual gas - or gas that may not be drainable or be an active component in an outburst. The true residual gas content is defined by the sorption isotherm at 1 atmosphere and is typically in the range of < 1m3/t up to sat 2.5 m3/t depending upon the seam and gas composition. The Q3 referred to in the gas content test results is simply an artefact of the test. It is nearly always the largest component of the quick crush gas content result. The relative fraction of it does decrease with increasing total gas content (i.e. there is an increase in the fraction of Q1 and Q2 in the quick crush result with increasing Qm).