

Recollections of Mining Through Outburst Conditions

Barry Condran, retired miner driver, West Cliff Colliery

Introduction by Bob Kininmonth - Barry is a 4th generation coal miner. He started his mining at Mt Kembla in 1962 in the pick and shovel days. He then spent the last 23 years of his mining life at West Cliff as a miner driver during the times of the first outbursts.

Barry Condran

I was one of the first people employed at West Cliff which was a new mine at the time (1976). We developed No. 1 Area which went well without problems. We then developed in No. 4 Area. One afternoon shift, we had a blowout on a mylonite zone. Nobody had experienced one before, so we collected whatever information we could and the consensus was that, if the coal was drilled, the gas pressure would be reduced and blowouts should be prevented. So the next time we had to drive through the zone, we pre-drilled it. Mining was occurring in the panel. One of our fitters went out to get a bolting machine and as he was walking back to the face there was a blowout through vibration in the borehole. Fines were ejected from the hole which knocked the fitter over. He still has the scars on his face. Back to the drawing board. I felt I did not want to be a miner driver staring down the barrel of hole into the face which could act like a choke on a shotgun targeting me.

We then formed a small crew of experienced miner drivers, Gordon Vivian, Stan Boag and myself. We were the ones who had to mine through the zones to develop through experience, as safe a method as possible for mining them. We noted that each mylonite zone seemed to blow out differently from other mylonite zones. Some would just blow gas, some mainly coal and others a mixture of gas and coal. We had to devise a method for safe mining that could be easily understood by other miner drivers in the pit. We developed a code of precautions. We trained miner drivers to recognise such warnings as changes in the coal during mining, gas fluctuations on the monitors, a red tinge on the roof or “stretch marks” on the roof. These indicated a mylonite zone was coming. We added the precaution “**If you are not sure, DON'T**”. It was considered the best thing to do if a miner driver was not sure about what was in front, was to get the specialised crew which later became known as the “bomb squad”, to mine through the zone.

We had a lot of close shaves. In one case, we had to cut a turn near a mylonite zone which was close on the driver's side. This is a hairy situation. The burst occurred sooner than expected. The shuttle car was cross-ways under the back of me. When the burst occurred it pushed the continuous miner and shuttle car about 3m across the heading and took out a row of props on the other side. I was in the cabin and too close to the outburst zone. There were a lot of fines in the cabin and up the side. After that, we did all we could not to hit a zone on the side again and only mined them head on i.e. with the zone straight across the face. One zone was along a belt road so mining it it could not be avoided. We mined along it for a week. Mining was slow and only on day shift. The coal had time to partly drain between mining shifts. The mine manager had never experienced an outburst, so he stayed with us all week to see one. But he had to go up early on the Friday afternoon for a meeting and when he reached the dolly car, we had an outburst. (Editor's note – In the Illawarra, it was said that outbursts seemed more common towards the end of the week when mining was being conducted in coal that had had the least time to drain).

Sometimes when we struck a mylonite zone and expected a lot of coal to be ejected, we would just get a rectangular tube blow out with a lot of gas while the coal around it remained solid. Sometimes we would get what we called a puffer: a big amount of coal would slump off the face and release

some gas, but that would be the end of it.

As the pit expanded, I spent a week with some shift crews for training. We had a bomb squad on each shift. This was when the longwall blocks were being developed in Area 4.

When we approached the major structural zone in Area 4, the regular crew would stop mining 20 m from the zone. Our bomb squad then took over. We squared the face off as we could not have an undercut. We kept the brattice as close to the face as possible with an extra prop set. We trimmed the face. We knew that when we got 3 or 4 m past the first cracks in the roof (joints) we expected an outburst. We trimmed only a little bit of the face at a time. At times we had to back off to allow the ventilation to take the gas away. When we thought we were ready to go with the burst, we sheared down and took a deeper undercut at the floor so that when we hit the miner into the zone, the blade would go in deeper and give more of a bang on the face. On the day we had the big outburst, I was driving. I sheared down to the bottom and made sure it was deep enough. I stopped and made sure all was ready. I got the cable hand back out of the road. I dropped the head down about a foot below the roof so it would not hit the roof and cause sparks which could cause an ignition. I hit the face and the last thing I usually got was everything stopped because the pressure coming out of the face was greater than the pressure going in. This meant the zone was coming. There was a bit of a delay. First I would see the whole face area drop from the roof and push the miner back. Just behind that a big rectangular channel would blow out and then would come the noise. A big bang. Then it was over. In the big outburst, we loaded out 35 cars and still had more loose coal sitting there. Because the zone was straight across the heading, and with the miner head up, a lot of coal would blow under the head and push the miner back about 4m in this case. 9 brattice props were blown out. There was a compressed air blanket in the cab operated on demand by the miner driver.

People say we cannot see gas, but it was like a heat haze coming out of the hole. It continued to bleed out for several shifts with the constant "heat haze". After this, methane drainage caught up with us and took most of the pressure of the coal.

In most of the outbursts I mined, they came mainly from the top of the seam. Some came from the bottom or from one side. In some cases it was like a disc of coal blown out from the rib. On the little faults we had small CO₂ blowouts.

We were very lucky in those early days. We had our code of precautions and nobody was gung-ho about it. The outbursts frightened everyone. I know they frightened me. After the methane drainage caught up, there were still outbursts occurring but they were not as big or as severe. After the mylonite zones were mapped properly, they were projected on the maps and the normal crews stopped mining and handed over to the bomb squad prior to intersection of the zones.

That is how the bomb squad came into being at West Cliff.

Questions

Maaten Velzeboer – I admire your courage.

Barry – It was not courage. Nobody had seen a mylonite zone or an outburst before, so it was a learning process. We had another experience when putting a cutthrough towards another panel. I was on the shuttle car and the miner was in two miner lengths. The miner driver was going to double the brattice at the turn while I emptied the car of coal. When I was at the boot end, I hear a loud bang. I thought "we aren't mining!". When I got back to the face I found that big flat discs of coal had

blown off the face and back to the turn (15 to 20 m) and knocked the miner driver off the stand he was on to fix the brattice. The vibrations from the nearby panel had initiated the burst. From then on, there was no mining side by side.

Tin Ren, University of Wollongong - What would you like to see in the way forward. What would you expect from researchers?

Barry - I thought gas drainage would eliminate outbursts. But at the last Outburst Seminar in June, I heard how Appin had just had an outburst which was not prevented by drainage, but was safely mined by radio controlled remote mining. Ripu Lama designed a radio system with a microphone in the miner driver's helmet with a receiver outbye. It was designed to test whether the sounds of mining changed when cutting through an outburst zone. I don't think it worked. I have been retired 10 years and I was hoping there would be no more outbursts. I hope there will be no more outbursts.

Ray Williams – Acoustic or microseismic was tried at Collinsville with Byron McCavanagh and he used it before then at West Cliff. It was inconclusive. The big problem was that nobody wanted to base a management system on an alarm going off a few seconds before an outburst and everyone having to run. It is possibly a reasonable research tool, but not a practical management tool.

John Hanes, Outburst Seminar Committee – Could you explain the large discs that burst.

Barry – It was sheets of 4 or 5 inches of coal which blew off as big pieces and a big bang but no signs of an obvious outburst.

COAL AND GAS OUTBURST COMMITTEE
Half Day Seminar – Wollongong 11th November, 2009

Contents

Review of In-seam Drilling Practice – Scott Thomson, CRC Mining	Page 2
Coal Properties and Outburst Simulation – Xavier Choi, CSIRO Petroleum	Page 17
Recollections of Mining Through Outburst Conditions – Barry Condran, retired miner	Page 43
Review of Ventilation and Gas Management Strategies to reduce GHG Emissions – Rau Balusu, CSIRO	Page 47
Biogenesis of Methane and Bio-alteration of Tight Coal – Chris Rogers, Apex Energy	Page 67
Coal 2010	Page 101

