

**WITNESS STATEMENT OF ROBERT GAULTON**

**I, Robert Gaulton, of Yallourn North, Victoria, state as follows:**

**Personal background**

1. I currently reside in Yallourn North in the State of Victoria. I have lived in the Latrobe Valley for 42 years and have a number of connections with the Morwell community.
2. I have a Diploma in Applied Geology from Bendigo Institute of technology I also have a Masters in Coal Geology from Wollongong University and a PhD from Monash University. The title of my thesis was "*Managing and leading cultural change in the Australian minerals industry*".
3. I was employed by the State Electricity Commission Victoria (**SECV**) between 1972 and 1996 as a mine geologist. I worked at each of the Loy Yang, Yallourn and Morwell (now known as Hazelwood) mines. When I started with the SECV, I was the only mine geologist at the mines. By the time, I left I was leading a group of 6-7 geologists and technical personnel.
4. My role as a mine geologist involved a range of duties. I was required to identify the shape and disposition of the coal seams, where they were, any sub surface regularities and irregularities in the seam, slope stability, coal quality, dewatering, drilling and exploration.
5. My role later diversified and expanded to include internal training and other related areas.
6. In 1996, I left the SECV with a departure package. That allowed me to complete my PhD studies. After completing my PhD, I worked part time in various roles including in organisational dynamics at Fluor Daniel within Hazelwood Power Station. I also spent 8 years working as a prison chaplain at Fulham Prison.
7. I have also undertaken periodic consulting work for the Loy Yang, Yallourn and Hazelwood mines since I left the industry This has involved around six assignments, keeping me in contact with the brown coal industry since my departure from the SECV. I have also undertaken a number of geological and geotechnical assignments for mining operations in Australia and abroad.

## Brown Coal

8. The Hazelwood Mine is a brown coal mine, which means that it has a number of features that are different from typical black coal mines.
9. Brown coal has a higher in moisture content than black coal and requires dewatering before it is used to generate power. Black coal will produce more heat but will combust primarily on the surface of individual particles. Being more porous, brown coal will burn within its microstructure, which can make it more difficult to extinguish.
10. Brown coal contracts significantly shrinks on drying, creating a network of shrinkage cracks. In addition, brown coal seams tend to exhibit jointing (partings due to geological forces). This means that fire can get within the coal and smoulder beneath the surface of exposed brown coal in a way that is not replicated with black coal. It is for this reason there have been hot spots at the mine for over 35 years, since the 1977 fire. There are likely to be further hot spots following the recent fires in February/March 2014.
11. Brown coal mines also have burn craters which are naturally occurring and surrounded by a halo of natural char. This char can sometimes combust when exposed to air. 'Old Faithful' at the Hazelwood mine is a probable example of this.
12. In the Yallourn-Morwell area, fresh brown coal has a 'bed' moisture content of 63-67% moisture. However, when exposed on the surface it, gradually dries to less than 20% moisture.
13. Latrobe valley brown coal is unique in the world in the sense that we have to dig through about only 15 metres of overburden to reach massive seams of coal that can range up to more than 200 metres thick. In Germany, where there are also open cut coal mines, there is the opposite ratio where the majority of mined material is overburden. In these mines it is easier to rehabilitate the mine as there is more overburden available to backfill the void left by mining.
14. The Hazelwood mine has steep batters which have exposed coal. As the raw coal oxidises it adopts a greyish colour, as opposed to the red/brown colour of fresh coal.
15. The shape of Hazelwood mine has been influenced by the location of Morwell and also the economic use of the conveyor belts around the mine.

**1977 Fire**

16. I was employed at SECV when the 1977 fire broke out at Hazelwood Mine.
17. Fires are not unusual in mines, however it is unusual for a fire to get out of hand and resist control for more than a few days.
18. In November 1977 a fire got out of control at the Hazelwood Mine. At the time, I was involved as one of the personnel attempting to fight the fire. My role was to guide crews to the particular locations in the mine.
19. I understand that the fire in 1977 ignited when wet coal got splashed onto a vehicles exhaust, ignited when it dried out and caused combustion to begin in the mine.
20. The fire was able to get out of hand because there had been a protracted maintenance strike which meant that the reticulated supply of water was not as close to the operating face as it usually was. Usually the maintenance crews would move the fire service pipes to keep pace with the operating face. That had not happened because of the strike. As a result, when the fire started, there wasn't enough water to combat it and it got out of control quickly and atypically.
21. There was an inquiry into the 1977 fire. I was not directly involved in the inquiry into the mine fire, however during the inquiry process I was asked my opinion about what could have been done differently and what could be learnt from the fire and management of the fire for the future. Most people involved in the fire were interviewed or asked to make some suggestions.
22. I suggested to the Inquiry that it would be useful for the mine to have an elevating platform truck to help fight fires in the future. I understand that the mine purchased such a vehicle, however I am not sure how long it was retained by the SECV.
23. My personal learning from the 1977 fire was that the steep slope of the batters made it difficult to fight the fires from the levels above or below burning coal batters. The faces of the batter are too high for nozzles to be effective in spraying the water on the coal from below, especially where there was insufficient pressure to deliver large quantities of water onto the fire. From above, updrafts tended to also prevent adequate volumes of water reaching batter fires. I thought then and still believe that an elevated platform is required so that the jets of water could be directed more effectively at the burning faces of the batters.

**Mine Fire Service**

24. During my time at the SECV there was a dedicated fire service. In addition, the mine would call on as many internal resources as possible to fight fires and rarely involved the CFA in mine fires.
25. When there was a fire at the Hazelwood mine, the SECV fire service would use a lot of mains pressure water to get the fire under control. There was no compressed air foam available to fight fires in 1977, only large quantities of water.
26. I understand that during the privatisation process, the focus was on outsourcing as many areas as possible. I understand that the operators of the Hazelwood Mine are now far more reliant on contacting the CFA when there is a fire and no longer retain a substantial dedicated fire services team at the mine.
27. At the time of privatisation a large amount of expertise was lost to the mines. Before privatisation there were nearly 11,000 people employed full time by the SECV in the Latrobe Valley. This number fell to little more than 2000 following privatisation. Although much brown coal mining expertise and experience has been lost to the current operations, a number of highly experienced people are still living in the Latrobe Valley community.

**My experience with the Hazelwood Mine Fire**

28. On 9 February 2014, I was at home in Yallourn North. I became aware of the fire entry into the Yallourn and Hazelwood mine by the smoke that was emitted into the sky. The sight took me back to the mine fire in 1977 as the smoke from a brown coal mine fire tends to have a different (darker) hue to that of a bush or grass fire.
29. I was not directly affected by the fire as it was a considerable distance from our home. However, when I came into to Morwell on occasions, I noticed a tightness of breath. I am asthmatic and found that I had to use my puffer more, either when I was in Morwell during the fire or after I had returned home. I didn't seek any medical attention.
30. On about 18 February, my wife went to the public meeting at Kernot Hall in Morwell. The Incident Controller, Barry Foss, was there and announced that Incident Control were sourcing people down from New South Wales with experience in fighting coal fires in that state. She wondered why they had looked interstate when there were local people with relevant experience and

knowledge. She spoke to the Incident Controller as he was leaving, gave him my details and suggested that he ring me. Barry Foss rang me the next day and asked me to speak with Kevin Pettit, the CFA Operations/Performance Manager and Incident Planner.

31. I met with Kevin Pettit at the incident control room in Traralgon that day. He was quite candid with me, admitting that the fire was presenting unexpected difficulties in controlling and that they were not sure they would be able to remediate it in the short term. I also was not confident, as they did not appear to have the quantities of water available to sufficiently exclude oxygen to the many sources of combustion.
32. Kevin Pettit said that there had been significant progress with the surface combustion but he conceded that there were likely to be ongoing vulnerabilities relating to the weather and the lack of substantial reticulated water at the Hazelwood mine.
33. I told him that in my experience, massive and consistent quantities of water would be required to permanently quell the surface combustion of the exposed coal. I noted that intermittent and sporadic water was likely to have minimal impact and may in some instances make the situation worse by spreading burning particles to other nearby locations. I also advised him that that the application of insufficient water risked generating more carbon monoxide
34. I told Kevin Pettit that the exclusion of oxygen was likely to be as important as wetting down the area, particularly in regard to sub-surface combustion. I explained that the coal seam is heavily jointed and in some places also heavily fractured. As such, oxygen may be drawn from points of ingress distant from active burn zones to help feed below surface combustion. This means that oxygen exclusion activities need to be applied over a broad area, in places well beyond the directly fire-affected areas.
35. I asked him about the use of additives such as foam or gel polymers in fire fighting water that might act to help preclude or limit oxygen intake across broad areas. He told me that trials had taken place with mixed results in the Hazelwood mine and that any suggestions I had to help remediate the situation would be welcome.
36. I suggested that steps be taken to exclude/limit oxygen to the areas impacted by the fire by ensuring that all relevant levels were sheeted in clay by trucking in adequate quantities of moist clay, spreading it with machinery and compacting it .

37. I made notes of my meeting with Kevin Pettit. A copy of those notes is attached as "RG-1".

### **Rehabilitation**

38. During my time at the mines I did not have any involvement in the rehabilitation process. I do not believe that there was any rehabilitation work per se within the mine during the SECV days, however I believe that there was some limited attempt by the SECV to cover some of the older exposed coal batters with clay. There was relatively extensive covering of the horizontal surfaces with clay sourced from mined overburden in order to limit coal dust and also as a fire retarding initiative.
39. It is my understanding that rehabilitation has in the past focussed largely on treating external facilities such as the overburden dump, attempting to topsoil and revegetate such facilities. The use of clay capping within an operating mine is not rehabilitation, but an operational technique to limit dust and lower the possibility of fire.
40. The land area occupied by the Hazelwood mine can't be rehabilitated back to what it was due to the large disparity between volumes of coal and overburden removed.
41. There are parts of the Hazelwood mine that haven't been operational in decades. I see no operational reason why old parts of the mine can't be progressively rehabilitated in as far as this is practicable.
42. In the mid 1990s, before privatisation, the redundant Yallourn North extension mine was largely rehabilitated as a grassed depression/wetland and provides a local example of what can be achieved in a brown coal mine.

### **Improvements for the future**

43. There are a number of areas in regard to the management of the mine and fire that I consider could be improved for the future.
44. Firstly, I was concerned that the Hazelwood mine did not tap into the local community to help fight the fire. There are people in the community with a significant amount of knowledge who could have helped the situation had they been consulted.
45. Secondly, the Hazelwood mine appeared to have an insufficient water supply to fight the fire. Coal mines need large amounts of water continuously available to suppress fire and to prevent any fire from getting out of control.

46. Finally, I also consider that it may be worthwhile to coat the old and vulnerable exposed batters with a fire protectant such as a stabilised clay and cement mixture. This I would not classify as rehabilitation, however it would provide an interim fire prevention measure until the batters can be fully rehabilitated.

**Submission**

47. Attached to my statement at "RG-2" is my submission to the Hazelwood Mine Fire Inquiry.

ROBERT GAULTON