IN THE MATTER OF THE HAZELWOOD MINE FIRE INQUIRY

WITNESS STATEMENT OF ROBERT RONALD DUGAN

Introduction

1. My name is Robert Ronald Dugan. My work address is Brodribb Road, Hazelwood, VIC.

2. I am employed by Hazelwood Power Corporation Pty Ltd at the Hazelwood Coal Mine (**"Mine"**) as Mine Production Manager.

3. This statement is based upon on my own knowledge and recollection of the circumstances surrounding the fire activity within and around Hazelwood commencing on Sunday, 9 February 2014. In light of my role as Mine Manager Production, and my role throughout the fire incident as Hazelwood's Emergency Commander, some of the information within this statement is based upon reports provided to me by Hazelwood and CFA personnel.

4. My role in the broader management team at the Mine is depicted in the chart at **Annexure 1**.

5. Since 1977, I have worked at the three brown coal mines in the Latrobe Valley area, including at the Mine. The other mines that I have worked at are Yallourn and Loy Yang.

6. My profession is a Surveyor. I have a Certificate of Technology – Surveying (now known as a Diploma) from Yallourn Technical College. I graduated in 1980. I have worked as a Surveyor in the mine at Yallourn, Hazelwood and Loy Yang. In 1993, the survey component of Latrobe Valley SEC was outsourced. I then went to work at a firm called Fisher Stewart. They were contracted to do the surveying for the mines as well as many other types of surveying throughout Victoria and the eastern seaboard.

7. During my time as a Surveyor, I took on roles managing earthworks within mines. I did that until 2001 when I took a position back at Hazelwood Mine working as the Senior Mine Surveyor from August 2001 to May 2007. From around 2004, I was also one of 5 Emergency Services Liaison Officers ("**ESLOs**") working at Hazelwood. If there was an emergency of any sort on site, I would work with the commanding officer and work with any external emergency services agencies coming in. During that time, there was a fire in 2006, and because of my experience as ESLO, Steve Rieniets, the then Mining Manager, took control of that fire at the start and I was his 2IC ("**Second in Charge**") and remained so until the end of the fire.

8. From May 2007 to September 2010, I worked as the Mine Operations Co-ordinator. In September 2010, I was appointed Mine Production Superintendent. In April 2012, I was appointed Deputy Production Manager. In December 2012, I was appointed Acting Production Manager (a role which I had performed from time to time previously), and in June 2013 I was appointed Production Manager.

9. I report to Garry Wilkinson, Mining Director. Three positions report to me, being the Production Superintendent, the Services Superintendent, and the Operations Scheduler. Dave Shanahan is the Services Superintendent, Terry McDonald is the Operations Scheduler. The position of Production Superintendent is currently the subject of a recruitment process.

10. My day to day role as Mine Production Manager is to provide coal supply to the Hazelwood Power Station in a safe and efficient manner.

11. Dave Shanahan was appointed to the role of Services Superintendent in early February 2014. Dave is a civil engineer by trade and was previously with RTL Mining and Earthworks Pty Ltd ("**RTL**"), the Mine's earthworks contractors, for 20 years. He has a great understanding of the Mine and how it works. Dave oversees fire services at the Mine, of which the "1x7 crews" are a key component. There are two 1x7 crews, known as 1x7A and 1x7B. Each of the 1x7 crews has a supervisor. The supervisor of the 1x7A crew is Dean Suares, and the supervisor of the 1x7B crew is Noel Coxall. The 1x7 crews undertake general maintenance of the fire service system throughout the Mine, they undertake minor maintenance in relation to mine infrastructure, and provide support to the 2x12 operations group. They also have specific responsibilities in the event of fire.

12. Prior to the establishment of the Services Superintendent position, I dealt directly with the supervisors of the 1x7 crews, who reported to me.

Mine Fires

13. Because of the volatility of the brown coal and the machinery we have at the Mine, relatively small fires are reasonably common. The Mine can experience several minor fires in any given week. Fires at the Mine, and in particular in the open cut, are generally caused by a mechanical fault of some sort, for example a bearing seizing in an idler resulting in sparks being generated, or a flare up of a pre-existing geological hot spot. Consequently the Mine has detailed procedures for managing and extinguishing fires.

14. In my 35 years experience in the Latrobe Valley brown coal mining industry, I am not aware of any fire being caused in the Mine as a result of external bushfire, prior to the fire activity which commenced in the Mine on 9 February 2014. This fire activity was unprecedented in size, eventually burning over a length of 6.1 km of the northern and southern batters.

15. A key difference between a bushfire and a brown coal fire is principally that when a bushfire burns, it exhausts its fuel in a particular area, leaving no fuel for it to reignite. This is not the case with a brown coal fire.

Experience with previous significant fires at the Mine

16. In the following paragraphs I refer to significant fires at the Mine in respect of which I was involved in the response.

17. In October 2006 there was a fire at the Mine caused by a mechanical failure in the operating area of the Mine ("**October 2006 fire**"). The mechanical failure was a seized idler on conveyor M620. The M620 conveyor runs along a bench in the operating area of the Mine, which in 2006 was, and today still is, located in the Mine's West Field. The fire occurred on a day which was the hottest October day on record in Morwell (up to that time), and there had been significantly lower rainfall than normal in the preceding winter period. Because of the strong winds (it was a Black Saturday type of day) the spark that came off the idler landed in an area of coal that was not covered by the sprays due to the wind blowing the spray pattern away. That spark triggered a fire which spread to engulf the whole bench on which the M620 conveyor was located, and the surrounding parts of that batter.

18. Within 20 minutes it had spread over 1.5 km and destroyed the conveyor. Then Dredger number 11 and the conveyor drive were burnt. The fire then jumped to the next level of the batter and set fire to that level and the conveyors. That happened around lunch time. By late afternoon, we only had one coal system left out of 3 to supply coal. In those days we did not have the large machinery that CFA and MFB now have. We had cranes with monitors (a

monitor is like a sprinkler head) attached, a contractor work force with their 30,000L water tankers, and our operational Mine work force with hoses. The CFA came in with their 3,000 litre capacity fire trucks. At the time I was the operations field co-ordinator and 2IC to Steve Rieniets, who was the Mining Director. I estimate that the fire went for 5-6 days with about a 5 day wind down period with the services involved, that is, the CFA. A report was prepared in relation to the October 2006 fire. A copy of that report is attached at **Annexure 2**.

19. Amongst other things, the report in relation to the October 2006 fire contains a review of the recommendations from a significant fire which occurred at the Mine in 1977.

20. At **Annexures 3-5** are copies of the following documents in relation to the implementation of the recommendations arising out of the report in relation to the October 2006 fire:

    a. document entitled "*2006 Mine Fire Action Plans*";

    b. Internal Follow Up Review dated January 2008;

    c. an Internal Audit Report issued in March 2008.

21. In September 2008, there was a fire in the Southern batters of the Mine which was caused by the flare up of a pre-existing geological hotspot ("**September 2008 fire**"). We knew about the hot spot because a fire had occurred in that area on 30 December 2005 which had taken 3-4 days to extinguish. Whilst we had capped the hot spot with clay and monitored it, hot spots such as this can flare up unexpectedly, for example due to wind getting through cracks in the coal. I estimate that the September 2008 fire went for 4 days with about a 4 day wind down period. The Mining Director was Ian Quail at the time who acted as the Emergency Commander and I was his 2IC. The CFA were called in for the 2008 fire to assist Mine employees and contractors to suppress the fire. A report was prepared in relation to the September 2008 fire. A copy of that report is attached at **Annexure 6**. The report included a further review of the implementation of the recommendations from the October 2006 fire.

22. In January 2012, there was a fire on Dredger 11 ("**January 2012 fire**"). This fire resulted from an idler bearing in the centre chute of the Dredger seizing, which caused the conveyor belt to ignite and set fire to other parts of the dredger. I was at Lochsport on holidays at the time of the incident. I got a call from my shift manager about the fire. I was the Acting Production Manager at the time. I drove about 1 hour 20 mins to get to the Mine. The Mining Director at the time was Richard Polmear, and he was onsite before me. He did not assume the position of Emergency Commander as the Shift Supervisor was already filling that role. I took over from Richard Polmear to oversee the recovery as the fire had been controlled by the time I arrived. It was a typical structural fire. I ensured that the fire was completely extinguished, and put in place strategies to make the area safe. A report was prepared in relation to the January 2012 fire. A copy of that report is attached at **Annexure 7**.

23. The report into the January 2012 fire made certain recommendations. One of the recommendations was to install a fire suppression system on Dredger 11. This system was subsequently installed and forms part of the Mine's current fire-fighting system. Another recommendation was to conduct fire-fighting simulation exercises in a dredger context. Four such exercises were conducted during 2013. All these exercises involved the CFA working with our Operations 2x12 and 1x7 crews. These exercises included monitoring the response times from the operations personnel, CFA personnel and enactment of the Emergency Response Plan ("**ERP**"). These exercises involved fighting a simulated fire on the dredgers utilizing the various aspects of our fire-fighting resources including the 30,000L fire tankers.

24. At **Annexure 8** is a report which reviewed the implementation of the recommendations in the report in relation to the January 2012 fire.

25. Better procedures have resulted from implementing recommendations made in respect of previous fires, such as undertaking training with the CFA and including them in our simulation exercises. Another significant learning from the previous fires was that the fastest and most reliable source of water to extinguish fires on a dredger was not only the water system on the dredger itself but the use of a 30,000L water tanker. We have two such water tankers as part of the Mine's Earthworks work force.

26. From previous fires we also learned that we should provide escorts wherever possible for the CFA fire-fighting teams who come on site at the Mine.

Fire/Emergency Response

27. The Mine has a number of fire related policies and procedures. The policies include the following:

- *Emergency Response Plan – Hazelwood Mine* revised May 2013;
- *Mine Fire Service Policy & Code of Practice* revised July 2013;
- *Hazelwood Mine Fire Instructions* issued 27 July 2011;
- *Internal Grass Slashing – Specification for Grass Mowing* issued 17 October 2011;
- *Hazelwood Mine Guidelines for Season and Period Specific Fire Preparedness and Mitigation Planning* issued 13 September 2007;
- *Check List for Fire Fighting Equipment Annual Inspection* issued 18 January 2013;
- *Check List for Season Specific Fire Preparedness and Mitigation Planning* issued 24 *November* 2008;
- *Check List for Hazelwood Slot Bunker Fire Services Wash Down & Routine Inspection* issued 18 January 2013;
- *Mine Fireman Assessment* issued 24 February 2012;
- *Fire Person Duties Training Manual* issued 23 August 2012; and
- *GDF Suez Hazelwood Electricity Safety - Bushfire Mitigation Plan* for the period commencing 1 July 2013.

I understand that copies of these policies were provided to the Board of Inquiry by letter dated 2 May 2014.

28. I understand that the *Mine Fire Service Policy & Code of Practice* is based upon the Generation Victoria *Latrobe Valley Open Cut Mines - Fire Service Policy* dated April 1994 which replaced the SECV *Latrobe Valley Open Cuts Fire Protection Policy* dated December 1984.

29. Employees of the Mine and contractors such as RTL, Belle Banne Conveyor Services Pty Ltd, Lend Lease Services Pty Ltd and O&M Pty Ltd receive basic training in relation to fighting brown coal fires. Copies of the training slides are attached at **Annexure 9**. Each person typically has refresher training every 12 months.

30. Another aspect of the Mine's procedures is that an audit is conducted in about July/August of each year in relation to the Mine's fire related infrastructure. Equipment or machinery which is identified to be in need of replacement or repair is then procured. This audit is conducted by the 1x7 crews, and typically takes about 2 months. Attached at **Annexure 10** is a copy of the audit report conducted prior to the 2013/2014 fire season.

31. Each year we conduct a grass slashing program comprising approximately 530 hectares between the Mine boundary and the top of the open cut. This grass slashing is usually completed by December or January. In the 2013/2014 fire season, this was completed by the first week of January 2014. I typically conduct a review in about February of each year to determine whether the grasslands require any further slashing.

32. As part of our processes during a fire season, expected temperatures and wind for the following day are monitored. If the conditions warrant it, we issue a *Mine Fire Preparedness & Mitigation Plan*, the form of which is shown in Annexure 2 to the *Guidelines for Season & Period Specific Fire Preparedness & Mitigation Planning*. This plan may be issued by the Services Superintendent, a 1x7 Services Supervisor, or me as the Mine Production Manager. A Mine Fire Preparedness & Mitigation Plan refers to the forecast weather for the day concerned, the positions of the Dredgers in relation to the conveyors, the required fire preparedness steps (including spraying, and filling of furphies and other water tankers), the resources available (including employees and contractors), and reiteration of requirements upon a Fire Alert being notified. A *Mine Fire Preparedness & Mitigation Plan* is sent to all employees and contractors by email, with persons who do not have computer access to be contacted by their supervisors.

<u>Fire Preparedness at the Mine</u>

33. The fire-fighting infrastructure in place at the Mine at the time of the 9 February 2014 fire activity was as follows:

    a. A reticulated fire services water system. The system consists of a pipe network which supplies water to sprays and hydrants (including tanker filling points) in the Mine. The hydrants have CFA compatible threads. The system is powered by a series of electric pumps located in the sector 4 pond in the floor of the Mine. There is also a clean water pump station which de-waters the aquifer beneath the Mine and then conveys the artesian water to the Hazelwood pondage. This water can be diverted into the Hazelwood Mine fire services pipe network through the H section valve. Water can also be pumped back from the Hazelwood cooling pondage into the pipe network, utilising pumps 50 and 53. The Low Quality Water pipeline from Loy Yang A (owned by AGL) allows water to be pumped back into the Mine via C and D tanks. A copy of a plan depicting the pipe network as at 9 February 2014 is at **Annexure 11**.

    b. Two ex-CFA Tankers, which are both owned by the Mine. Each ex-CFA tanker has a capacity of 3,000L. One of the ex-CFA Tankers is operated by a security and emergency services contractor, Diamond Protection Pty Ltd.

c. Two 30,000L water tankers which are owned by the Mine's mobile plant provider, Delta Rent Pty Ltd. These two water tankers are made available to the Mine 24 hours a day, 7 days a week.

d. Furphy carts. A furphy cart is a water carrying trailer with hoses and pumps which can be towed by Mine vehicles. The water capacity of the furphy carts is 1000L. The Mine has three 1,000L furphy carts, and one 2,500L furphy cart.

e. Two booster pump trailers which are used in conjunction with crane monitors.

f. Crane monitors which can be attached to our all-terrain cranes. The Mine has three crane monitors.

g. All 4WD vehicles operating in the Mine (whether owned by the Mine or its contractors) have two 30m hoses, nozzles and a 16L knapsack. These hoses can be attached to the fire service pipe network which allows all Mine employees and contractors with the vehicles to respond to a fire.

At **Annexures 9** and **12** are photographs of some of the Mine's fire services equipment.

34. Throughout the year, I produce a weekly "*rag report*" with red, amber and green colouring, indicating the fire and flood risk in the upcoming week. It summarises the status of fire and flood preparation. This is a high level report that I deliver to the senior Mine management at the start of each week. It provides an overview of the weather forecast for the next week, the maintenance of our fire-fighting pumps, for example, for the status of the pumps for the reticulated fire service system, the status of the annual fire-fighting audit, whether required slashing has been done, and the extent to which the Mine's employees and contractors have done their yearly training (as a percentage of completion). It is a ready reckoner to determine if we are on track for the week. A copy of such a report is attached in **Annexure 13**.

35. In addition to the required fire training, the Mine also conducts simulated fire preparedness exercises for all Mine employees and contractors. In simulated fire preparedness exercises, the Mine involves other agencies such as the local CFA to get them familiar with the Mine, how to get access to it, and appropriate ways of fighting fires in brown coal (as noted above, special techniques are required to put out fire in brown coal open cut mines). These exercises are also an opportunity to enact our Emergency Response Plan for the Mine, and test it out. The training allows our 2x12 Shift Supervisors to be prepared to act in the role as Emergency Commander in the event of an emergency. We conducted four simulated fire emergencies during 2013. We also had one simulated fire emergency in January 2014. All of these simulated fire emergencies involved the CFA. A further simulated fire emergency with the CFA and other agencies had been scheduled for March 2014, however this has been postponed due to the 2014 fires.

<u>Lead up to the fire activity which commenced at the Mine on 9 February 2014</u>

36. During a fire season, I am in regular contact with CFA Morwell and in particular its station officer, Shane Mynard. Although I cannot specifically recall doing so, I believe I would have spoken to Mr Mynard in the days preceding 9 February 2014 in relation to the Hernes Oak Fire.

37. I became aware of the Hernes Oak fire on Friday, 7 February 2014 and had numerous discussions about the fire and the potential threat that it posed with Dave Shanahan. We

agreed that the two 30,000L tankers, two graders and two dozers should be positioned on the north-western boundary of the Mine. That is the area facing the Hernes Oak direction. The personnel responsible for this equipment included the 1x7 crew and the Earthworks Group. The Earthworks Group is a contract workforce that operates the Mine's mobile plant. There would have been around 30 employees of the Earthworks Group at the Mine on Friday, 7 February 2014, about six of whom would have been involved in relation to positioning of this equipment.

38. In consultation with me, Dave Shanahan prepared and issued a Mine Fire Preparedness and Mitigation Plan for Saturday, 8 February 2014 and Sunday, 9 February 2014. A copy of the Mine Fire Preparedness Mitigation Plans for these two days is attached in **Annexure 14**.

39. In accordance with the Plan, the two Mine 30,000L tankers were to be manned for the weekend of Saturday, 8 February and Sunday, 9 February 2014 and were manned from 7:00am to 7:00pm each day and available for use at night, if required.

Fire activity commencing on 9 February 2014

40. On Sunday, 9 February 2014, I was at Mallacoota which is about 5 hours away from Morwell. I had arrived there on Saturday, 8 February 2014. This was the beginning of a scheduled week's annual leave. I left to go to Mallacoota on Saturday understanding that, on the basis of reports I had received, the Hernes Oak fire had died down and was not posing a significant threat to the Mine. On Sunday afternoon at around 3:30pm, I received a telephone call from the then Production Superintendent, Matt Weddell. He informed me that there were fires in the open cut and that Romeo Prezioso, Senior Mine Planner, was Emergency Commander for Sunday.

41. I telephoned Romeo Prezioso, who briefed me with the following information:

    a. Romeo saw that the Hernes Oak fire had flared up and was active when he was driving on the Princes Freeway about midday on the Sunday. He therefore aborted his trip with his son to Melbourne and went to the Mine;

    b. Romeo had called the Acting Mining Director, James Faithful to tell him that the situation was becoming serious and that he needed to come to the Mine. Romeo advised me that James was having difficulty getting to the Mine due to fire related road closures;

    c. Romeo had checked that personnel were in place and were carrying out patrols, and that the steps required by the Mine's plans;

    d. John O'Brien from the local CFA (Morwell Brigade) had told Romeo that there was now also a fire at Driffield, and that Romeo had alerted the Mine's Control Centre about this fire;

    e. there were a number of spot fires within the open cut; and

    f. Dave Shanahan was on site at that time.

42. Shortly thereafter, Romeo Prezioso informed me that he had declared a fire emergency, and that Steve Harkins (the PC&E Director) was on site as well as Alan Roach who was the ESLO.

43. Romeo Prezioso told me in a later conversation that power had been lost in the Emergency Command Centre ("**ECC**"), and that a temporary ECC was being established in the Mine Office.

44. James Faithful took over as Emergency Commander overnight, and power to the ECC building was restored. Once power to the ECC building was restored, James moved the command centre back to the ECC building.

45. At about 8:00pm, and with a view to returning to the Mine, I made enquiries whether the highway was closed due to the fires near Orbost. I was told that the highway was closed until further notice.

46. On Monday, 10 February 2014, upon learning that the highway had been reopened, at about 11:00am I left Mallacoota to return to the Mine. I arrived on site at about 4:00pm that day.

47. I drove around the Mine with one of the Earthworks Group Supervisors and Dave Shanahan to inspect the extent of the fire activity. I then went to the ECC where I remained for several hours in order to familiarise myself with the fire-fighting activities that were being conducted. I went home at around 8:00pm. At that time, there was a concern about the fire in the Mine which was moving towards the operating face, pushed by the easterly winds. The winds had pushed the fire activity along to the northern batters and south eastern batters.

48. By Tuesday, 11 February 2014, the following emergency command structure was established at the Mine for responding to the fire:

    a. I was appointed Emergency Commander for the day shift (i.e. 6am to 7pm).

    b. James Faithful was appointed Emergency Commander for the night shift (i.e. 6pm to 7am).

    c. Romeo Prezioso was appointed Field Co-ordinator. He was in charge of three or four supervisors, who in turn were in charge of the fire-fighting teams consisting of Mine employees and contractors.

49. This structure was implemented to manage the Mine's response to the fire. Overall control of the fire response was the responsibility of the CFA, and had been so since the CFA formally took command late on Sunday, 9 February 2014.

50. By Thursday, 13 February 2014, we had divided (for our purposes) the fire activity into two sectors, being the northern batters and the southern batters. By Saturday, 15 February 2014, we divided the fire into three sectors, being the northern batters, the eastern batters and the south-eastern batters. After about two weeks, we established a fourth sector being the mine floor sector. A supervisor and his team were responsible for each sector.

51. By the weekend, being 15/16 February 2014, the CFA, which included the MFB personnel, had established a similar structure of using sector commanders to co-ordinate its firefighting teams. In particular:

    a. CFA appointed three sector commanders who each liaised with nominated Mine representatives (who we called the "GDF sector commanders"). The CFA sector commanders would operate in co-operation with the GDF sector commanders and the

CFA teams for each sector would co-ordinate the fighting of the fire in their respective sectors.

b. The CFA sector commanders were instructed by the CFA Morwell divisional commander with whom I liaised.

c. The CFA Morwell divisional commander answered to the Incident Controller. The Incident Controller was also superior to the CFA Yallourn Divisional Commander. The CFA Yallourn Divisional Commander was in charge of the fire at the Yallourn Mine.

52. Commencing from Tuesday, 11 February 2014, I established a process involving meetings three times a day (typically at about 6am, 12 noon and 6pm) between the GDF sector commanders, the field co-ordinator (Romeo), myself, Steve Harkins and others. The purpose of these meetings was to obtain reports from the whole of the fire area, co-ordinate action between the sectors and determine the appropriate distribution of resources (both equipment and personnel). The meetings at 6am and 6pm were attended by the outgoing and the incoming GDF sector commanders to enable handover reports to be given. At the meetings the report from each sector would identify health and safety issues, geotechnical concerns, the status of the fire, and ongoing requirements and resources. These meetings were also regularly attended by the CFA divisional commander and the CFA sector commanders. These meetings were captured on a white board, photographed and stored, and then transcribed into word documents. This process continued from 11 February 2014 until about Day 44 of the fire activity. An example of the whiteboard notes is attached at **Annexure 15**.

53. These meetings also enabled senior personnel, both from GDF SUEZ Australian Energy and the CFA, to be updated as to the status of the fire. The Mining Director, Garry Wilkinson, attended most meetings from Sunday, 16 February 2014. The CFA Chief Fire Officer, Euan Ferguson, attended two meetings. Various other senior officials from the CFA and MFB, who required an update of the fire, also attended various meetings.

54. During the course of the fire, the CFA divisional commander and I were based in close proximity to one another and liaised closely. The incident controller was initially located in the ECC building but, after a few days, his team moved to what is known as the 2030 building, which is adjacent to the Power Station.

55. At 8:30am each day I would attend at the 2030 building and report on the status of the fire to the Incident Management Team ("**IMT**") from information I had received from the nightshift, and to inform them of the proposed action for the course of the day. The IMT consisted of representatives from the CFA, MFB, Ambulance Victoria, amongst other agencies.

56. By 18 February 2014, the IMT had grown to about 20 personnel, which was too large for the 2030 building. As a result the IMT moved to purpose built Incident Control offices in Traralgon. Initially we maintained liaison through a Hazelwood employee. However after about three days, on Friday, 21 February 2014 the Incident Controller requested that I attend at meetings at Traralgon each day at 1:30pm. I reported to these daily meetings until the end of the fire. At the meeting, in attendance were usually the Incident Controller, his secretary, the head of planning, the head of safety, the head of aircraft support logistics and the head of operations. Representatives of the Mine and the EPA also attended. During the second half of the period of the fire, representatives of a geotechnical firm engaged by the CFA also attended. An example of these minutes of meetings is attached at **Annexure 16**.

57. On Wednesday, 12 February 2014, I had a general meeting in the 2030 building with Euan Ferguson, CFA Chief Officer, Peter Lockwood, fire officer Traralgon, and Darren Davies, MFB, on the state of the fire.

58. Later in the day, I had a conversation with Peter Lockwood in which he told me that the government wanted the fire out within 48 hours. I told him that I was sure everyone wanted the fire out as soon as possible, but as it was a coal fire, in my view it would take at least another 16 days to extinguish.

59. On Thursday, 13 February 2014, I telephoned the Mining Director at the Yallourn mine (Ron Mether), and the Acting Mining Director (John Kneinhaus) at the Loy Yang mine. The Yallourn mine is owned by Energy Australia, and Loy Yang mine is owned by AGL. The purpose of my calls was to request assistance with earthmoving operators, as I believed we were likely to run into fatigue management issues with our earthmoving operators. Ron Mether told me that they had their own fire that they were dealing with, and did not have any spare earthmoving operators. He did, however, offer specialised pump personnel and assistance along with the opportunity to lend to us large diameter hoses. Mr Kneinhaus also offered us specialised pump personnel; but advised that they had no spare earthmoving operators. The assistance offered was in accordance with emergency policies between the mines, under the auspices of the Central Gippsland Essential Industry Group (**"CGEIG"**) regarding the sharing of personnel in a fire emergency.

60. Later that day I had a meeting with Peter Barr (station officer, CFA Sale) and Peter Lockwood from regional CFA, and we discussed issues arising from potential Carbon Monoxide ("**CO**") exposure. The Mine was directed by the CFA to fight the fires in accordance with the policy and procedures that the CFA had adopted with respect to CO exposure.

61. Also on 13 February 2014 I invited Ian Quail, a former Hazelwood Mining Director, on site to overview or audit what was being done in relation to the fire activity and to offer any suggestions based on his past experience. Ian was Production Manager for 20 years and then Mining Director for 2 years at the Mine before he retired in February 2011. Mr Quail indicated that he supported the approach being taken and had nothing significant to add to what was already being done at that time, which involved applying enormous quantities of water to the areas of fire activity within the Mine.

62. Priority was being given to the fire activity around the northern batters, given the belief that this was the main contributor to the smoke and ash which was impacting Morwell.

63. On or about 13 February 2014, Peter Lockwood and Barry Ross (the Incident Controller stationed out of the CFA Traralgon ICC at that time), told me that anything that the Mine needed, whether machinery, or personnel, we should say so now and they would seek to provide it. He indicated that the Treasury had said to them that they would provide "*whatever it takes*" to put the fire out.

64. I called a meeting with Peter Lockwood and our sector commanders to brainstorm ideas as to additional resources that could be utilised. As a result of this discussion, we determined that extra fire service pipework was needed together with increased levels of labour to put the pipework into place.

65. On Friday, 14 February 2014 we had the two engineers from AGL's Loy Yang personnel onsite together with our own engineer in order to determine where any new fire service pipes

might be located. This included areas where existing pipework had been damaged by the fire activity

66. During the course of the fire at the Mine, we ordered about 7 - 8 kms of 300mm diameter steel pipes. In order to be installed, these pipes needed to be welded together. Three welding crews worked day and night welding together the pipes, which were towed into place and installed. At times we had issues with the CO levels being too high which impacted the work on the pipes. To overcome this problem, the CFA trained the welders in the use of breathing apparatus, and the pipes were installed with CFA personnel standing by.

67. WorkSafe conducted an audit on 14 February 2014. The audit was positive. A copy of this audit is attached at **Annexure 17**.

68. On Friday night, the CO level increased to a level where we had to evacuate the ECC and move to the Mine Office.

69. Leading up to 15 and 16 February 2014 it was identified that there were water storage issues. This was because of the number of extra fire-fighting appliances and spray monitors operating at the Mine, which was above the water supply capacity in the Mine. The redundancy system which draws water from the Hazelwood pondage was used to supplement the fire system with additional water. A consequence of the fire-fighting efforts and the amount of water being used, however, was that the capacity of the storage ponds on the floor of the Mine was being exceeded. Because of this, the number of monitors that were operating had to be restricted for a short period so that we could operate within the capacity of the Mine water supply. In order to overcome this situation we devised a method whereby the clean water pumps were utilised to help pump out excess water from the storage ponds into the Hazelwood pondage.

70. Garry Wilkinson, the Mining Director, returned to the Mine from leave on Sunday, 16 February 2014. This did not alter the Mine's command structure in relation to the fire. I continued as Emergency Commander in control of the fire-fighting operations at the Mine. Garry resumed control of the day-to-day running of the Mine operations and recovery operations while supporting me in my role as Emergency Commander.

71. On 18 February 2014, the ECC relocated to the 2030 building vacated by the IMT.

72. On 19 February 2014, the CFA set up CO monitoring in the staging area located in the Hazelwood Power Station car park.

73. Around this time issues were starting to arise with the groynes (retaining walls between the storage ponds in the base of the Mine adjacent to the northern batters) which were struggling to hold the excessive amounts of water. We then brought in large capacity pumps from Yallourn mine to pump the excess water up into the Hazelwood pondage.

74. In addition, we brought in extra high head pumps to pump out of the sector 4 storage pond into our current fire service reticulation system.

75. Around Saturday, 22 February 2014, a crack developed on groyne 5 which confirmed the prior assessment that the groynes were under stress from the excess water in the lower storage ponds. We decided to transfer water from the lower storage ponds into the bigger storage ponds by utilising additional high volume diesel pumps brought in from Yallourn mine.

Fighting the fire: Effort by Mine Staff

76. Over the course of the 45 days of the fire activity, Hazelwood deployed an additional 33 items of major mobile plant resources to fight the fire, including:

a. 5 all-terrain 30 tonne cranes with monitors;

b. 7 30,000 litre water tankers with monitors;

c. 7 long reach 30 tonne excavators; and

d. numerous pieces of earthmoving equipment.

All of this mobile plant equipment was in addition to the Mine's operational equipment totalling up to approximately 70 items of mobile plant used for the fire-fighting effort.

77. During day shift, the Mine had its own resources with up to 80 personnel fighting the fire on day shift and about 50 personnel fighting the fire at night. This number does not include the Mine's operational workers or the CFA/MFB fire fighters.

Fighting the fire: joint effort

78. The CFA had statutory responsibility for the suppression of the fire activity at the Mine which commenced on 9 February 2014. The CFA formally took over responsibility late on that day. Notwithstanding this, as is apparent from the preceding paragraphs of this statement, employees and contractors of the Mine continued to be heavily involved in the suppression effort with the CFA.

79. Challenges which arose during the suppression effort included the following.

CFA on site

80. We usually had 3 to 4 escorts available each shift to take CFA personnel from the staging area to the Mine. CFA and MFB personnel were transported by us to the operating plant using small buses and 4WD vehicles. We also escorted CFA and MFB personnel who were driving vehicles of their own.

81. As many CFA and MFB personnel had not been in the Mine before there was a concern that vehicle accidents might be caused by drivers not knowing what roads to take. For example, we had an incident during the night shift early on when a CFA strike team was told to evacuate. One CFA vehicle did so without an escort. The driver got disorientated and caused damage to infrastructure. While we were escorting CFA and MFB personnel to and from the areas where they were fighting the fire, fire-fighting appliances being used at a given location remained in place to minimise the "down time" while these personnel changes occurred.

CO management

82. Exposure to CO is an issue in fighting a bushfire, however in a fire in an open cut brown coal mine it is particularly dangerous because the CO can be contained in the open cut mine. This effect is impacted by the level of wind activity. Until about Thursday, 13 February 2014, the Mine employees and contractors engaged in fire-fighting efforts were using CO monitors, and were dealing with CO in accordance with the *Hazelwood Mine Fire Instructions*. CO was monitored on a centralised basis with the various personnel in the Mine reporting their

readings on their atmospheric CO monitors on an hourly basis to a radio operator. This data was recorded and subsequently entered into a database/spreadsheet to ensure compliance with the *Mine Fire Instructions*.

83. On Wednesday, 12 February 2014, the CFA directed that regardless of atmospheric CO readings within the Mine, all firefighters, CFA and Mine employees and contractors, were only permitted to fight the fire for 2 hours and then were required to be tested and take a 2 hour break. During their break, testing of percentage of CO in their blood was carried out on the CFA's finger testing monitor. Initially, there was only one CFA finger testing monitor available to test approximately 60 Mine employee and contractor fire fighters, 60 CFA fire fighters plus approximately 40 operational Mine employees. This resulted in large queues of personnel waiting to be tested.

84. We found that there were erroneous readings given by the CFA finger testing monitors. It was through trial and error the CFA discovered that UV lights in the staging area and the fire fighters' dirty hands were adversely affecting the accuracy of the readings. The CFA then installed hand washing stations for fire fighters to use prior to being tested, and used UV covers on the fire fighters' hands. This improved the accuracy of the readings being obtained from the CFA finger testing monitors.

85. These problems hampered the fire-fighting effort.

86. By about 18 February 2014, the CFA and the Mine agreed a CO policy as follows:

    a. If the atmospheric CO monitors indicated less than 30ppm, the fire fighters were able to complete their normal shifts.

    b. If the atmospheric CO monitors indicated more than 30ppm, but less than 50ppm the fire fighters were permitted to work for 2 hours and then have two hour rest.

87. If the atmospheric CO monitors indicated more than 50ppm, the fire fighters were to evacuate, relocate to an area where there was less than 30ppm or wear a breathing apparatus. On 21 February 2014, I issued a memo entitled "*Health Monitoring CO Testing Process*" to all Mine staff and contractors, setting out the CFA's CO policy that took effect from night shift that day. At **Annexure 18** is a copy of the memo.

88. During the period up until 25 March 2014 when the CFA declared the last fire affected area of the Mine as safe and handed back management of that area to the Mine, as far as I am aware, nobody had to be treated for CO exposure arising out of the fire-fighting effort.

<u>Rotation of Divisional Commanders</u>

89. Until late February 2014, certain challenges arose with respect to the rotation of Divisional Commanders, who were the CFA personnel with whom I worked the closest:

    a. The CFA rotated numerous (approximately 10) different persons in the role. This led to inevitable re-learning by the new occupants of positions.

    b. The incoming CFA Divisional Commanders who were appointed, did not appear to have experience in the management of a large fire-fighting workforce for an extended campaign.

I raised these matters through the CFA IMT. The first issue was resolved relatively quickly. The second issue was resolved by about late February.

Replacement of Sector Commanders

90. For the first week most of the CFA Sector Commanders were local CFA permanents or volunteers, who were experienced in fighting brown coal fires and were familiar with the layout of the Mine. Many of them had participated in the fire simulations and training exercises carried at the Mine or had been involved in previous coal fires at the Mine.

91. After the first week, most of the CFA Sector Commanders were replaced with persons from throughout Victoria who did not have this relevant experience and had not previously been to the Mine.

Fatigue Breaks

92. The Mine employee and contractor fire fighters worked 12 hour shifts and typically would take the following breaks during the course of the day:

    a. Morning tea of 15 minutes.

    b. Lunch of 30 minutes.

    c. Afternoon break of 15 minutes.

93. After a CO policy was agreed with the CFA in mid February 2014, the CFA fire fighters worked according to their fatigue policy which required them to take a 2 hour break after 2 hours of work. This meant that during each break, a new crew of fire fighters would have to be sent down to replace the fire fighters on a break (if there was enough manning available).

94. The consequence of the CFA fatigue policy was that it required substantial transport support from the Mine and reduced the effect of fire-fighting time of the CFA workers from the nominal 12 hour shift to about 6 hours.

Observations

95. In my view, the things that worked well in relation to the fire-fighting efforts at the Mine included:

    a. The Mine staff and their local knowledge and experience. Due to the efficiencies of the Mine's systems and established policies, Mine employees and contractors were able to work normal 12 hour shifts. Personnel arrived at 7:00am, they were briefed on arrival, they then went out to assist in the fire-fighting efforts until morning tea, and they would work until lunch and then work throughout the afternoon with a 15 minute afternoon break.

    b. The CFA adapted well to the peculiar demands of fighting fires in an open cut brown coal mine by making good use of the following equipment which the CFA either had or managed to access:

        i. 2 Sikorksy helicopters with long line buckets;

        ii. a helicopter with Forward Looking Infra Red ("**FLIR**") imaging;

iii. other helicopters for directing the Sikorskies;

iv. MFB and CFA tele booms, aerial pumpers, and 4.4R tankers; and

v. three airport crash tenders obtained from Canberra and Sale.

c. The FLIR imaging was vital to determine hot spots that could not be seen by the naked eye that allowed CFA and Mine sector commanders to have the ability to respond to fire activity in batters which was thought to have been previously extinguished but was seated deep in the batters.

d. The CFA utilised Compressed Air Foam System ("**CAFS**") appliances. These appliances spray compressed foam onto the batters. These appliances were obtained from Queensland, Tasmania and New South Wales. The foam, when sprayed onto the burning coal, took the heat out of it. This allowed personnel to get into the area with fire trucks and pumps. CAFS appliances were instrumental in allowing us to cool areas down sufficiently so as to allow the restoration of fire damaged pipe work, or the installation of additional pipe work. CAFS appliances were also used for the extinguishment of fire activity in conjunction with ordinary water monitors.

e. The 6 x 12 x 6 meetings was a main source of information sharing between Mine and CFA personnel involved in the fire-fighting effort, and the CFA and Mine sector commanders. This was a good result as we worked well together. Daily we would gain an appreciation of the various equipment and personnel available at the Mine.

f. From the other two mines in the Latrobe Valley, we had a lot of help offered through networks such as the CGEIG, and the Mine took them up on their personnel expertise. They offered before they were asked, which is indicative of the co-operation between the power generators in the Latrobe Valley when they have emergencies.

g. The manner in which the interstate fire fighters worked in well with the CFA and Mine command structure.

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ROBERT RONALD DUGAN

Dated: