

IN THE MATTER OF THE HAZELWOOD MINE FIRE INQUIRY

WRITTEN SUBMISSIONS OF GDF SUEZ AUSTRALIAN ENERGY

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SECTION ONE – ORIGIN OF AND RESPONSE TO FIRES

Background

Ownership Structure

- 1 The Hazelwood Coal Mine (“**Mine**”) and the Hazelwood Power Station (together, “**Hazelwood**”) are owned and operated by the Hazelwood Power Partnership (“**HPP**”) and Hazelwood Power Corporation Pty Ltd (“**HPC**”).
- 2 Since 7 June 2013 the partners of the HPP have been:
 - (a) National Power Australia Investments Ltd;
 - (b) Hazelwood Pacific Pty Ltd;
 - (c) Australian Power Partners BV; and
 - (d) Hazelwood Churchill Pty Ltd.
- 3 HPC is the holder of mining licence MIN 5004 issued under the *Electricity Industry Act 1993* (Vic) on 10 September 1996 (the “**Mining Licence**”), under which the Mine is operated.
- 4 MIN 5004 has been amended since its grant, with additional mining licences MIN 5449, MIN 5450, MIN 5451 and MIN 5452 granted in relation to the West Field extension of the Mine amalgamated and incorporated into MIN 5004.
- 5 HPC and the various partners holding interests in the HPP are wholly owned subsidiaries of International Power (Australia) Holdings Pty Ltd (“**IPAH**”).

6 IPAH is jointly owned by subsidiaries of GDF Suez S.A and Mitsui & Co Ltd. IPAH and its subsidiaries comprise the GDF Suez Australian Energy group of companies (“**GDFSAE**”).

7 The Mine is adjacent to the town of Morwell, which is separated from the eastern end of the North batters of the Mine by the Princes Freeway and the associated Freeway reserve. Hernes Oak and the Yallourn open cut coal mine are to the North West of the Mine, and Driffield is to the South West.

Management Structure

8 A diagrammatic representation of the senior Mine management team is at Annexure 1 to the witness statement of James Faithful.¹

9 The Hazelwood managers and senior employees with responsibilities for fire prevention, preparedness and response within the Mine are as follows:

Title	Name(s)
Asset Manager	George Graham
Mine Director	Garry Wilkinson
Manager Production	Robert Dugan
Services Superintendent (new appointment)	David Shanahan
Shift Supervisors²	Scott Roberts, Tony Briffa, Peter Smith, Ian Wilkinson, Shaun O'Neill, Colin Lipman
Services Supervisors³	Dean Soares, Noel Coxall
Senior Project Manager	Darren Grieve

10 In the context of a fire emergency, under Hazelwood’s fire and emergency policies (listed below), the following managers and officers have key responsibilities:

Title	Name(s)
Emergency Services Liaison Officers (ESLOs)	Darren Grieve, Romeo Prezioso, Bob Knight, Alan Roach, Rob Dugan, Chris Morley

¹ Exhibit 88.

² There are 5 rosters (A – E), with one shift supervisor per roster, and one relief supervisor.

³ There are 2 rosters (A – B), with one services supervisor per roster.

Title	Name(s)
Emergency Commander	Garry Wilkinson, Shift Supervisors, Stan Kemsley, Rob Dugan

Hazelwood Mine Fire

- 11 Fire activity occurred in the Mine from Sunday, 9 February 2014, with the areas in the North batters impacted by fire declared to be safe by the CFA on 21 March 2014, and the areas in the South East/Eastern batters and the Overburden (“OB”) Dump impacted by fire declared safe by the CFA on 25 March 2014.
- 12 Over 7000 fire-fighters from CFA and MFB were involved in the fire suppression and response during the 45 day fire fighting operation at the Mine, together with Hazelwood employees and contractors.⁴

Hazelwood’s Fire Preparedness

The Mine’s Fire Policies

- 13 Hazelwood has detailed policies and procedures regarding fire prevention and suppression within the Mine, given the combustible nature of brown coal. All Hazelwood employees and contractors undergo annual fire fighting training, and Mine personnel are highly skilled in identifying, and promptly responding, to instances of fire.⁵
- 14 Fire Services Commissioner Craig Lapsley acknowledged that Hazelwood has state of the art policies for fire prevention and suppression, takes fire preparedness and mitigation very seriously, understands the potential for fire in the Mine in its every day working life, and understands what it means for the Mine to have fire in it.⁶
- 15 The Mine’s fire related policies and procedures include the following⁷:
- (a) *Emergency Response Plan – Hazelwood Mine;*⁸
 - (b) *Mine Fire Service Policy & Code of Practice;*⁹
 - (c) *Hazelwood Mine Fire Instructions;*¹⁰
 - (d) *Internal Grass Slashing – Specification for Grass Mowing;*¹¹

⁴ Statement of Craig Lapsley (Exhibit 1), [100].

⁵ Faithful, T381.23-T381.28; Statement of Robert Dugan (Exhibit 13), [29].

⁶ Lapsley, T114.28-T115.8.

⁷ Robert Dugan (Exhibit 13), [27].

⁸ Exhibit 11.

⁹ KWM letter 2 May 2014, tab 8 (Exhibit 66).

¹⁰ Exhibit 12.

- (e) *Hazelwood Mine Guidelines for Season and Period Specific Fire Preparedness and Mitigation Planning*;¹²
- (f) *Check List for Fire Fighting Equipment Annual Inspection*;¹³
- (g) *Check List for Season Specific Fire Preparedness and Mitigation Planning*;¹⁴
- (h) *Check List for Hazelwood Slot Bunker Fire Services Wash Down & Routine Inspection*;¹⁵
- (i) *Mine Fireman Assessment*;¹⁶
- (j) *Fire Person Duties Training Manual*;¹⁷ and
- (k) *GDF Suez Hazelwood Electricity Safety - Bushfire Mitigation Plan*.¹⁸

16 Other related documents include the Mine's Safety Management System, and the Major Mining Hazards Assessment Report dated 2009 prepared by GHD.¹⁹

17 The *Emergency Response Plan – Hazelwood Mine* (“**ERP**”), which was most recently revised in May 2013, and the *Hazelwood Mine Fire Instructions*, which was most recently revised on 27 July 2011, are the principal plans in the event of a fire emergency at the Mine.

18 The ERP sets out guidelines for combatting major emergencies (including fire), and as to the interface with external agencies such as the CFA. The ERP is stated to conform with the requirements of the *Emergency Management Act 1986* (Vic), and to be compatible with the State Emergency Plan.

19 A major outbreak of fire is an emergency for the purposes of the ERP, noting that, as stated in the ERP, a coal fire or series of spot fires that do *not* spread beyond the initial point of ignition do not constitute an emergency notifiable to CFA.

20 A major outbreak of fire is dealt with in section 7.4 of the ERP. Section 7.4 brings into operation the Emergency Response Plan Flow Chart as contained in the ERP, and requires the *Hazelwood Mine Fire Instructions* to be followed.

¹¹ KWM letter 2 May 2014, tab 10 (Exhibit 66).

¹² KWM letter 2 May 2014, tab 11 (Exhibit 66).

¹³ KWM letter 2 May 2014, tab 12 (Exhibit 66).

¹⁴ KWM letter 2 May 2014, tab 13 (Exhibit 66).

¹⁵ KWM letter 2 May 2014, tab 14 (Exhibit 66).

¹⁶ KWM letter 2 May 2014, tab 15 (Exhibit 66).

¹⁷ KWM letter 2 May 2014, tab 16 (Exhibit 66).

¹⁸ KWM letter 2 May 2014, tab 28 (Exhibit 66).

¹⁹ Exhibits 68 and 76, and KWM letter 2 May 2014, tab 26 (Exhibit 66).

- 21 The *Mine Fire Service Policy and Code* is drawn heavily from and conforms with the *Latrobe Valley Open Cut Mines Fire Service Policy and Code of Practice*, which was produced by Generation Victoria (“**GV**”) prior to privatisation in 1994 (“**the GV Fire Service Policy and Code**”).²⁰
- 22 The GV Fire Service Policy and Code replaced the 1984 *Latrobe Valley Open Cut Mines Fire Protection Policy and Code of Practice* produced by the State Electricity Commission of Victoria (“**SECV**”), the predecessor to GV, which in turn was a revision of the SECV’s 1981 *Latrobe Valley Open Cut Mines Fire Protection Policy*.²¹
- 23 The GV Fire Service Policy and Code applied to all open cut coal Mines in the Latrobe Valley, and was signed off by the Mine Managers of all three open cut brown coal mines in the Latrobe Valley (Yallourn, Loy Yang and Hazelwood).
- 24 The GV Fire Service Policy and Code was expressed to contain the essential requirements and operating procedures for fire protection services to be provided for these open cut coal mines and their surrounding areas.
- 25 The GV Fire Service Policy and Code was stated to have evolved over many years of open cut operation and to have drawn upon the experience gained from general fire service operation and from several major open cut fires.
- 26 The GV Fire Service Policy and Code and the predecessor versions developed by the SECV was the “bible” for fire services at open cut brown coal mines in the Latrobe Valley.²²
- 27 The stated purpose of the Mine Fire Service Policy and Code is to achieve fire protection policy requirements by providing acceptable operating procedures for fire protection services for mining operations in the Mine.
- 28 The Mine Fire Service Policy and Code provides that the stated purpose will be achieved by a number of elements, including (first and foremost) a clear strategy and standard of open cut fire protection which protects all personnel within the Mine, protects all plant and equipment required for the maintenance of coal winning operations, and protects coal reserves to enable continuation of coal winning activities.
- 29 The Guidelines and Check List documents were introduced following a fire at the Mine in October 2006 and in response to recommendations made arising out of that fire.²³

²⁰ Statement of Robert Dugan (Exhibit 13), [28]; KWM letter 2 May 2014, tab 18 (Exhibit 66).

²¹ Statement of Richard Polmear (Exhibit 90), [20], [26].

²² Statement of William Brown (Exhibit 4); Brown, T159.16 – 23.

²³ Statement of Romeo Prezioso (Exhibit 93), [53].

Fire fighting resources at the Mine

30 Hazelwood has a range of fire fighting equipment at the Mine, including:

- (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). 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;
- (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, the other is operated by the Mine;
- (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 1,000L. 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) three crane monitors which can be attached to the Mine's all-terrain cranes;
- (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.²⁴

²⁴ Statement of Robert Dugan, (Exhibit 13), [33]. See also Annexure 11 for a plan of the pipe network at 9 February 2014, and Annexures 9 and 12 for photographs of various fire fighting equipment.

31 Further details of the Mine's fire service network, including a schematic of the pumps and tanks, are at Appendix C of the 2006 GHD Report annexed to the Statement of Robert Dugan (Annexure 2).²⁵

32 In terms of human resources, the Mine maintains the 1 x 7 services day operations group (A Roster and B Roster), which have primary responsibility within the Mine for managing the operation and maintenance of the fire service and dewatering systems, patrolling for fire, conducting wetting down, and fire response.²⁶ All Mine employees and contractors undertake training in relation to fighting brown coal fires²⁷ and assist in fire response as required.²⁸

Fire preparedness measures

33 Hazelwood undertakes a range of fire preparedness and mitigation measures throughout the course of the year, including:

- (a) grass slashing, over an area of approximately 530 hectares²⁹;
- (b) audits of the Mine's fire related infrastructure, including the reticulated water system³⁰;
- (c) fire training of Hazelwood employees and contractors³¹;
- (d) monitoring expected temperatures and winds during the high risk fire period, and where warranted, issuing a *Mine Fire Preparedness and Mitigation Plan*³²; and
- (e) weekly briefings to senior management (red/amber/green reports or "*Rag Reports*") summarising the status of fire preparedness. These reports provide an overview of the weather forecast for the next week, the maintenance of fire-fighting pumps, the status of the annual fire-fighting audit, whether the slashing has been done, the extent to which the Mine's employees and contractors have done their yearly training, and hot spot status.³³

34 The Rag Report issued on Monday, 3 February 2014 indicated that the Mine's various fire prevention and preparedness measures such as training, slashing and audits had been satisfactorily implemented, and that the Mine's fire fighting infrastructure was generally

²⁵ Exhibit 13.

²⁶ Statement of David Shanahan (Exhibit 7), [6]; Statement of Robert Dugan (Exhibit 13), [11].

²⁷ Statement of Robert Dugan (Exhibit 13), [29].

²⁸ Third Statement of Steven Harkins (Exhibit 58).

²⁹ Statement of Robert Dugan (Exhibit 13), [31]. See also documents 02.02 and 02.03 supplied on 9 May 2014 under the Summons.

³⁰ Statement of Robert Dugan (Exhibit 13), [30].

³¹ Statement of Robert Dugan (Exhibit 13), [29].

³² Statement of Robert Dugan (Exhibit 13), [32].

³³ Statement of Robert Dugan (Exhibit 13), [34].

available. It further indicated that the weather forecast for the week posed a medium risk which required further monitoring.³⁴

Friday, 7 February 2014

35 At about 12:50 pm on Friday, 7 February 2014, David Shanahan, Mine Services Superintendent, issued a *Mine Fire Preparedness and Mitigation Plan* for Saturday, 8 February 2014 and Sunday, 9 February 2014 to all of the Mine's employees and contractors.³⁵

36 The *Mine Fire Preparedness and Mitigation Plan* for each day summarised key information for Mine staff working at the Mine on Saturday, 8 February 2014 and Sunday, 9 February 2014 as regards fire preparedness, resources, and response. For example, they:

- referred to the fact that there was a total fire ban for each day;
- outlined a range of measures to be taken to reduce fire risks - e.g. wetting down to be undertaken on exposed coal in the operating area of the Mine; and
- set out the resources available in the event of a fire emergency, for example water tankers (30,000 litres), fire trucks (3,000 litres), f Murphy water carts (1000 litres).

37 Prior to issuing the Fire Preparedness Plan, David Shanahan (Services Superintendent) and Robert Dugan (Mine Production Manager) discussed making additional contractors available over the weekend of Saturday 8 February 2014, and Sunday, 9 February 2014, in light of the weather forecast and total fire ban, to supplement the Mine workforce.³⁶

38 Mr Shanahan and Mr Dugan arranged for 2 additional contractors from RTL Mining and Earthworks Pty Ltd (**RTL**) to be rostered for Saturday, 8 February 2014 and Sunday, 9 February 2014, to each man a 30,000 litre water cart within the Mine from 7:00am.

39 These contractors' duties were to patrol for fire, and conduct additional wetting down ("spraying") of the exposed coal in the operating area of the Mine.³⁷

40 A fire at Hernes Oak, to the northwest of the town of Morwell and the Mine, ignited on 7 February 2014 at around 3:30pm.³⁸ The CFA fire investigator's report concluded that the point of origin was found to be at the remains of a campfire.³⁹

³⁴ Statement of Robert Dugan (Exhibit 13), [34].

³⁵ Statement of David Shanahan (Exhibit 7), [17] and Annexure 4.

³⁶ Statement of David Shanahan (Exhibit 7), [16].

³⁷ Statement of David Shanahan (Exhibit 7), [16].

³⁸ Lapsley T30.6 - 10. T31.3, Statement of Craig Lapsley (Exhibit 1), [33].

41 Various personnel within the Mine observed smoke from the Hernes Oak fire. In response to the potential risk that the fire posed to the Mine, personnel from the Mine's 1 x 7 crew (led by Dean Soares, the Services Supervisor of the 1 x 7A crew) and various earthworks contractors stationed themselves in the north-west part of the Mine, which is the closest part of the Mine to Hernes Oak, with water carts.

42 These personnel patrolled for fire, and monitored the situation. These personnel were positioned in the north western part of the Mine until approximately 6:00pm on Friday, 7 February 2014 (and were kept back late for this purpose, having been due to finish at approximately 5:00pm / 3:30pm). Given the predominant wind direction, the Hernes Oak fire was not a threat to the Mine at that time.⁴⁰

Saturday, 8 February 2014

43 At 8:00am on 8 February 2014, the Regional Controller (“RC”) was advised by the Hernes Oak Incident Controller (“IC”), Lawrence Jeremiah, who was at the Traralgon Incident Control Centre (“ICC”) that the Hernes Oak fire was contained and that fire investigation was underway.⁴¹ Some CFA resources were released by the IC to enable them to return home.⁴²

44 At 10:33am on Saturday, 8 February 2014, George Graham (Hazelwood Asset Manager) sent an email to Luc Dietvorst (GDFSAE Head of Generation Australia), and Steven Harkins (Hazelwood Director, People Culture and Environment) which stated that *“the CFA website at 9:51 am states that fire activity has subsided, the bushfire is now safe.... Hazelwood remains on alert as per high fire danger protocols.”*⁴³

45 The *Fire Preparedness and Mitigation Plan* issued on Friday, 7 February 2014 had been incorporated into the Shift Notes for Saturday, 8 February 2014 and Sunday, 9 February 2014. Shift Notes are provided to all Operations and 1 x 7 Crew personnel. The Shift Notes were discussed at the pre start meetings of the 1 x 7 Operations crews which are held prior to the commencement of the day shift at the Mine. The pre-start briefing mentioned the risks posed by the Hernes Oak fire, and the potential for a wind change in the afternoon.⁴⁴

46 Whilst not rostered to work that weekend, David Shanahan cancelled a proposed trip to Port Welshpool and remained at home approximately 15 minutes from the Mine in light of the fire risks to both his home and the Mine.⁴⁵ David Shanahan remained in contact with Dean Soares,

³⁹ Statement of Craig Lapsley (Exhibit 1), [46], (CFA.002.001.0159), T36.28 - T37.2; Affidavit of Det Insp Roberts (Exhibit 5), [14].

⁴⁰ Statement of David Shanahan (Exhibit 7), [20]-[23].

⁴¹ Lapsley T.31.14-T31.30, Statement of Craig Lapsley (Exhibit 1), [71].

⁴² Statement of Craig Lapsley (Exhibit 1), [71].

⁴³ First Statement of Steven Harkins (Exhibit 10), [34] and Annexure 6.

⁴⁴ T279.2 – 18, T217.1-T117.5.

⁴⁵ T217.13-T117.21.

who was on duty at the Mine supervising the 1 x 7(A) crew throughout the day on Saturday, 8 February 2014, in order to monitor the situation at the Mine.⁴⁶ Dean Soares confirmed during those calls that at that time, there was no apparent active fire threat to the Mine.⁴⁷

47 Throughout the day on Saturday, 8 February 2014, Mine personnel conducted wetting down of operating areas in accordance with the *Mine Fire Preparedness and Mitigation Plan*.⁴⁸

CFA Phoenix modelling of fire dangers to the Mine

48 The evidence of Lawrence Jeremiah, the IC at the Traralgon ICC, was that computer generated modelling was for the Hernes Oak fire which utilised Phoenix software was shown to him at the ICC on 8 February 2014.⁴⁹ Mr Jeremiah further says that on late 8 February 2014 he was provided with modelling for Sunday, 9 February 2014 and that one of the models showed potential spotting “*as far as the Yallourn and Hazelwood Mines*”.⁵⁰ Mr Jeremiah also states that Mr Nick Demetrious, the Chairman of Central Gippsland Essential Industries Group (“CGEIG”), attended the Traralgon IMT at the Traralgon ICC on 8 February 2014 and “*was provided with copies of the Phoenix predictions which clearly showed that should the Hernes Oak fire containment break, spotting from that fire was likely to occur in the Mine*”.⁵¹ Mr Jeremiah in his Statement then attaches Phoenix forecast pages “for 0900 and 1100 on 9 February 2014”.⁵² Mr Jeremiah could not say whether these two forecast pages were in fact provided to Mr Demetrious.⁵³

49 It is clear on the evidence that neither of the Phoenix models attached to Mr Jeremiah’s statement were provided to Hazelwood. Rather, the only Phoenix modelling which Hazelwood received was a model date/time stamped Monday, 10 February 2014 at 1:59am. This model was attached to an email sent from the “ICC Traralgon (Planning Section)” to Mr Demetrious at 4:24pm on Saturday, 8 February 2014. Mr Demetrious is employed by AGL Energy at the Loy Yang mine. The email was forwarded by Mr Demetrious by email to Alan Roach, the Mine’s Emergency and Security Manager, and Mark Nash of Yallourn, at 4:29pm on the same day.⁵⁴

50 CGEIG is an organisation which provides a framework where Latrobe Valley essential industry companies can be called on to support Emergency Service Agencies, and each other, in the event of an emergency. It has no formal status. CGEIG evolved from the former Electricity Supply Industry committee under the former State disaster management plan, Displan, in the

⁴⁶ T217.28-T117.31.

⁴⁷ Statement of David Shanahan (Exhibit 10), [20]-[23].

⁴⁸ T218.21- 26.

⁴⁹ Statement of Lawrence Jeremiah (Exhibit 15), [51] – [54], [106]; see also Norris, T190.24-T191.6.

⁵⁰ Statement of Lawrence Jeremiah (Exhibit 15), [54].

⁵¹ Statement of Lawrence Jeremiah (Exhibit 15), [106].

⁵² Statement of Lawrence Jeremiah (Exhibit 15), [106] and Attachment 12.

⁵³ Jeremiah, T474.24-475.13.

⁵⁴ First Statement of Steven Harkins (Exhibit 10), [36] – [38], Annexure 7; T355.1 – T355.5.

1990s. Following the privatisation of the electricity generation facilities in the Latrobe Valley in the mid-1990s, the group continued to provide a point of contact between Emergency Service Agencies such as the State Emergency Service, CFA and Victoria Police and the various Latrobe Valley electricity generators. Membership of the group has now expanded to include electricity supply, oil and gas supply, water supply, paper production, major suppliers and State and Local Government.⁵⁵

51 Alan Roach is Hazelwood's representative on CGEIG, and attends bi-monthly meetings.⁵⁶

52 In the email to Alan Roach sent on Saturday, 8 February 2014 at 4:29 pm, which forwarded the Phoenix model date/time stamped 1:59am on Monday, 10 February 2014, Mr Demetrious stated as follows:

Team

This is the latest mapping from the Phoenix model at 01:00 hours tomorrow night worst case scenario this may be the fire protection.

53 If the two additional Phoenix models attached by Mr Jeremiah to his Statement were provided to Nick Demetrious, they were not forwarded by Mr Demetrious to Hazelwood.

54 Alan Roach did not understand the model sent to him.⁵⁷ Following receipt of the model, Alan Roach contacted Nick Demetrious to obtain a better understanding of what it meant. In that discussion, Nick Demetrious emphasised that it was a worst case scenario, and that further information would be provided the following day (i.e, on Sunday, 9 February 2014).⁵⁸ Alan Roach agreed to have a further discussion with Nick Demetrious the following morning to discuss any further information coming out of the ICC, and to obtain a better briefing on the weather situation for the following day.⁵⁹

55 Alan Roach was conscious that a *Fire Preparedness and Mitigation Plan* was already in place at the Mine for Saturday, 8 February and Sunday, 9 February 2014.⁶⁰

56 Alan Roach forwarded the Phoenix model which he had received from Nick Demetrious to Steven Harkins at 5:35pm on Saturday, 8 February 2014, with a covering email which relevantly stated as follows:

⁵⁵ First Statement of Steven Harkins (Exhibit 10), [21]; Roach, T632.14-19.

⁵⁶ Roach, T632.14-19.

⁵⁷ T634.20, T641.16 – 18.

⁵⁸ T 636.16 – 36.

⁵⁹ T638.2 -7, T 639.2 – 7.

⁶⁰ T642.10 – 18, T642.22 – 23.

This is a model map sent to me by Nick Demetrious from Loy Yang. I stress this is a worst case scenario model and is for planning purposes only, with a time stamp of 0100 on Monday morning.

I will spend some time with Nick tomorrow to get some better real time modelling as the day goes by.

Just wanted to keep you in the loop. I have not shared this info with Rob Dugan or Dave Shanahan as yet. I prefer to wait and see what the weather does.

57 Steven Harkins did not understand the basis of the model, or where it came from.⁶¹ Mr Harkins was not familiar with Phoenix modelling.⁶²

58 Given that the model was being described by Nick Demetrious and Alan Roach as depicting the potential worst case scenario position in the early hours on Monday, 10 February 2014, Steven Harkins considered that it was reasonable for Alan Roach to seek more detailed information the following morning.⁶³

59 In his evidence, Mr Harkins indicated that if late on Saturday, 8 February 2014 he had received the additional Phoenix models attached to Mr Jeremiah's Statement, which depicted fire activity at 9:00am and 11:00am on Sunday, 9 February 2014, given the imminence of the potential risk, he would have taken additional steps that evening, for example, contacting the Hazelwood Asset Manager, George Graham, to suggest that Hazelwood's Executive Team meet to consider the response, and meeting with David Shanahan to review the *Fire Preparedness and Mitigation Plan* already in place at the Mine, to determine if additional resources were required.⁶⁴

60 The Incident Logs for the IC for the Hernes Oak fire, Lawrence Jeremiah, were supplied by the Victorian Government Solicitor's Office on Thursday 12 June 2014. The logs refer to Mr Jeremiah's efforts to directly contact Hancock Victoria Plantation ("HVP") on Saturday, 8 February and Sunday, 9 February 2014 in relation to the risks posed by the Hernes Oak fire.

61 The logs do not contain a record of any efforts to contact Hazelwood directly, despite the predicted risks to the Mine, and despite the Hazelwood Mine and Power Station, which generate up to 25% of Victoria's baseline electricity, constituting critical community infrastructure (a CFA Level 3 incident priority, whereas a plantation is not).

⁶¹ Harkins, T348.23, T 349.27-T350.2; First Statement of Steven Harkins (Exhibit 10), Annexure 7.

⁶² First Statement of Steven Harkins (Exhibit 10), [38].

⁶³ Harkins, T349.27 - 31.

⁶⁴ Harkins, T352.12-T352.17.

- 62 Craig Lapsley also gave evidence that HVP was consulted.⁶⁵
- 63 Both HVP and Hazelwood are members of CGEIG, so the basis upon which these parties were treated differently as regards notification of risk is unclear.
- 64 In Hazelwood's submission, it is unsafe for the CFA to rely upon or expect a third party such as the CGEIG Chairman to pass on and explain significant information regarding a critical risk to the Mine. As it was, the CGEIG Chairman forwarded to Hazelwood only one of the models which, according to Mr Jeremiah, was available to the ICC on 8 February 2014, and that was the model date stamped Monday morning. The lack of a detailed accompanying explanation from the CFA directly, in relation to the significance of the Phoenix model, also materially reduced the utility of the provision of the single model that was passed on in any event.
- 65 The Hazelwood personnel who received the model (Mr Roach and Mr Harkins) were unfamiliar with Phoenix modelling, the significance of the time stamp, and the underlying assumptions of the modelling.
- 66 Further training in this regard is required, and was proposed by George Graham, Asset Manager, in his evidence to the Board on Friday, 13 June 2014.⁶⁶

Sunday, 9 February 2014

- 67 A number of the specific issues arising on Sunday, 9 February 2014 are discussed below.

Further advice on fire risks to the Mine

- 68 On the morning of Sunday, 9 February 2014, Mr Roach again spoke with Mr Demetrious of CGEIG. During this discussion, Mr Demetrious advised Alan Roach that he had attended a further briefing at the Traralgon ICC, that there had been no change in the expected conditions, and that a wind change was expected in the early afternoon.⁶⁷
- 69 Following this discussion, Mr Roach attended the Mine at about 12:27pm to more closely monitor the external fire risks to the Mine, and to ensure that there were adequate facilities for the establishment of an Emergency Command Centre, in the event of a fire impacting upon the Mine.⁶⁸

External fire threats to the Mine

- 70 On Sunday, 9 February 2014, two serious external fire threats to the Mine arose within a short period of time, namely:

⁶⁵ Statement of Craig Lapsley (Exhibit 1), [72].

⁶⁶ Exhibit 94: Graham' T2236.29 - T2238.11.

⁶⁷ Police Statement of Roach (Exhibit 25), p2-3; Roach T.640.11.

⁶⁸ Police Statement of Roach (Exhibit 25), p3; Roach T.644-645.

- (a) the Hernes Oak fire – which broke its containment lines at approximately 1:00pm⁶⁹, and was pushed rapidly towards the Mine by a strong and gusty north westerly wind, through grass land and eucalypt plantations. The reigniting of the Hernes Oak fire on 9 February 2014 is being treated as suspicious.⁷⁰ The fire front burnt right up to the boundary of the Mine, until a wind change at approximately 1:40pm pushed it away from the Mine and towards Morwell. Spotting ahead of the fire front was observed by Mine personnel; and
- (b) the Driffield fire - which commenced near the Strzelecki Highway between 1:30pm and 2:00pm. Driffield is to the south west of the Mine. Following the 1:40pm wind change, this fire was pushed directly towards the operating part of the Mine by a south westerly wind. Commissioner Lapsley has said that this fire is suspected to have been a result of arson.⁷¹ The Driffield fire progressed as far as the Morwell River diversion,⁷² which is adjacent to the Mine's operating coal face.

71 Throughout the course of the afternoon, once it broke its containment lines, the Hernes Oak fire:

- (a) spotted into the Yallourn Mine;
- (b) spotted to the south of Old Morwell Road – causing the fire which runs through to Maryvale Paper Mill;
- (c) threatened homes on the edge of suburban Morwell; and
- (d) burnt to the edge of the Hazelwood Mine.⁷³

72 Therefore, there were three major fires in the immediate vicinity of the Mine on 9 February 2014, namely:

- (a) the Hernes Oak fire;
- (b) the Hernes Oak extension; and
- (c) the Driffield-Strzelecki Highway fire.⁷⁴

⁶⁹ Lapsley T.33.15-T33.17.

⁷⁰ Affidavit of Michael Roberts (Exhibit 5), [14].

⁷¹ Statement of Craig Lapsley (Exhibit 1), [51].

⁷² Lapsley, T43.15-T43.24.

⁷³ Statement of Craig Lapsley (Exhibit 1), [48]-[49].

⁷⁴ Statement of Craig Lapsley (Exhibit 1), [43], T33.27-T34.9.

Fire activity within the Mine

73 There was not just one fire within the Mine on Sunday, 9 February 2014. Fires ignited at a number of locations within the Mine, as follows:

- (a) below the old Control Centre and Transfer Point 7 (“**TP7**”), at about the junction of the South East batters and Eastern batters;
- (b) on the floor of the Mine immediately south of the clean water pump station, in the vicinity of the overburden dump (“**OB Dump**”);
- (c) on the North batters, on the lower levels, to the west of the clay-capped fire hole which is sometimes described as “*Old Faithful*”;
- (d) on the grass level in the north western part of the Mine licence area, towards the Morwell wetlands and RTL Workshop;
- (e) within the operating area (western part) of the Mine;
- (f) on the grass level to the south east of the Mine in the vicinity of the Training Centre and Energy Brix Australia Corporation (“**Energy Brix**”); and
- (g) on the grass level of the North batters.

74 The particular fires which took hold and primarily impacted upon Morwell were the fires about the North batters, on the OB Dump, and the fires about the South East/Eastern batters of the Mine.

75 It is acknowledged that the fire activity was a product of what was an extraordinary day.⁷⁵

76 The fire activity on 9 February 2014 was of unprecedented magnitude and complexity, because of the multiple ignition points in various disparate parts of the Mine.⁷⁶ The circumstances were “extraordinary”.⁷⁷

Likely causes of the outbreak of the fires in the Mine on 9 February 2014

77 The evidence adduced before the Inquiry overwhelmingly points to the fires having resulted from ember attack/spotting from the Hernes Oak, Hernes Oak extension fires (collectively referred to in this submission as the “**Hernes Oak fire**”) and the Driffield fires.⁷⁸

⁷⁵ Lapsley T112.26-T112.29.

⁷⁶ Harkins, T335.2-T335.8; First Statement of Harkins (Exhibit 10), [104].

⁷⁷ Brown T173.13.

⁷⁸ Lapsley T114.23-T114.27.

78 Amongst other things:

- Commissioner Lapsley said in evidence that:
 - the potential of spotting off the Driffield Fire was a real probability in the sense that, the forested area and the convection column that was operating both had significant convection columns and the wind speeds were significant;⁷⁹
 - the Hernes Oak fire spotted into the north-west side of the Mine and took hold in the afternoon and evening of 9 February 2014;⁸⁰
 - the Hernes Oak fire and/or the Driffield-Strzelecki fire may have also spotted across to ignite the western side of the Mine;⁸¹ and
 - the most probable cause of fire in and around the Mine was either direct fire moving through the landscape or embers.⁸²
- the Phoenix model produced by the Jaymie Norris, Acting Manager of Strategic Bushfire Risk Assessment Unit in the Department of Environment and Primary Industry for the purposes of the Inquiry for the Driffield fire predicted that embers from Driffield would have impacted upon the Mine at around 3:00pm;⁸³
- the CFA has determined the spotting in or the travel of the fire into the Mine was the most probable explanation for the cause of the Mine fire, and not pre-existing hot spots;⁸⁴
- whilst situated in the north west part of the Mine licence area, James Mauger observed embers from the Hernes Oak Fire travelling overhead, and was concerned that he should patrol the interior of the open cut for fire activity;⁸⁵
- Professor Incoll in his expert report and in his evidence stated that the fires within the Mine were the result of ember attack;⁸⁶
- Steven Harkins observed embers coming into the Mine from the direction of Driffield, whilst positioned on the southern/ south eastern batters at “the knuckle”;⁸⁷ and

⁷⁹ Lapsley, T44.25 - 31, T103.30-T104.2.

⁸⁰ Statement of Craig Lapsley (Exhibit 1), [57].

⁸¹ Statement of Craig Lapsley (Exhibit 1), [57].

⁸² Lapsley, T719.12 – 29.

⁸³ Norris, T193.19, T193.24, T194.17-T194.21.

⁸⁴ Lapsley, T45.14-T.45.19.

⁸⁵ Statement of James Mauger, (Exhibit 8), [27].

⁸⁶ Statement of Incoll (Exhibit 92), [190].

- the Diamond Protection Incident log refers to the southern batters experiencing ember attack at 2:50pm.⁸⁸

79 The fact that there are plantations in the vicinity of the Mine, in the area through which the Hernes Oak fire burnt, is also consistent with the view that the cause of the fires within the Mine was embers.⁸⁹

80 No evidence has been adduced to the Inquiry that the fires at the Mine commenced from within the Mine or were due to any other cause. The evidence – including the photographs taken by Mr Shanahan and included in his statement – also is inconsistent with any notion that fires were caused by a flare up of the pre-existing (and clay capped) hot spot sometimes referred to as “Old Faithful”.⁹⁰

81 Based on their timing, the most likely causes of the individual fires within the Mine were as follows:

Timing (approx.)	Location of fire	Likely cause
1:45pm	Around the area between the Eastern and South East batters (below TP7/ the knuckle)	Ember attack/ spotting from Hernes Oak fire, during the period in which there was a prevailing North Westerly or Westerly wind. ⁹¹
1:45 pm - 2:15 pm	OB Dump (floor of Mine)	Ember attack/ spotting from Hernes Oak fire, during the initial period with a prevailing North Westerly or Westerly wind. ⁹²
1:45 pm – 2:15 pm	North/North West Batters	Ember attack/ spotting from Hernes Oak fire, during the initial period with a prevailing North Westerly or Westerly wind. ⁹³ Whilst this fire commenced near the vicinity of an existing fire hole, early photographs of the fire on the North/North West batters clearly depict the fire as being several hundred metres to the west from the clay capped fire hole. ⁹⁴ Further, thermal images taken by the Mine and investigations undertaken by the CFA subsequent to the commencement of the fires have confirmed

⁸⁷ Harkins, T335.9-T335.14; First Statement of Steven Harkins (Exhibit 10), [107].

⁸⁸ First Statement of Steven Harkins (Exhibit 10), Annexure 9.

⁸⁹ Lapsley T34.21 – T35.21; Norris T190.6 – 16.

⁹⁰ Statement of David Shanahan (Exhibit 7), [64].

⁹¹ Lapsley, T103.24-T104.8.

⁹² Lapsley, T104.9-T103.14.

⁹³ Lapsley, T104.15-T104.18.

⁹⁴ Shanahan T234.10-T234.13.

Timing (approx.)	Location of fire	Likely cause
		that there has been no recent fire activity within the fire hole. ⁹⁵
3:00pm – 6:00pm	Grass level in the northern part of Mine licence area (near RTL depot, MWN substation, MMD)	Several individual fires in this area, of which the likely causes are: <ul style="list-style-type: none"> • the spread or re-activation of the Hernes Oak fire (southern boundary), and related spotting, following the SW wind change; and • the fire on the North/North West batters burning up the batters, and related spotting, following the SW wind change.⁹⁶
3:00 pm – 6:00 pm	Operating face of Mine (West Field) – near 620, 720, 820 head end	Ember attack/ spotting from the Driffield fire, during the period with a prevailing South Westerly wind. ⁹⁷
5:00pm-6:00pm	Grass level above the West Field, towards the Morwell River diversion	Ember attack/ spotting from the Driffield fire, during the period with a prevailing South Westerly wind.
5:30pm	Grass level to the south of the Mine (M690 conveyor)	Ember attack / fire spotting from the fire on the South East/ Eastern batters of the Mine. ⁹⁸
5:30pm – 6:00pm onwards	Grass level in south eastern part of the Mine (in the vicinity of Energy Brix and Mine Training Centre)	Ember attack / fire spotting from the fire on the South East/ Eastern batters.

Communications with CFA

82 Whilst a record of a 000 call having been made by the Mine has not been located by the State of Victoria in the logs maintained by the Emergency Services Telecommunications Authority (“**ESTA**”), it is clear that there was contact with the CFA throughout the course of the afternoon, and that the CFA was aware of fire activity within the Mine from early afternoon, and the need for assistance.

83 For example:

- (a) a radio telephone log sheet kept by Diamond Protection for 9 February 2014 records under “outside agencies” notes “CFA” “000” “Yes” “Time: 13:40”,⁹⁹

⁹⁵ Craig Lapsley’s annexure La Trobe Valley Hazmat/Fire Plan released 21 March 2014 (FSC0006.009.0057).

⁹⁶ Lapsley T106.28-T107.3.

⁹⁷ Lapsley, T105.16-T105.21; Shanahan, T 239.17-T239.23.

⁹⁸ Lapsley T105.15-T105.22.

⁹⁹ Witness Statement of Steven Harkins (Exhibit 10), [45], Annexure 9.

- (b) the evidence of David Shanahan and James Mauger, including the videos that they supplied, indicate that the CFA were aerial bombing the northern batters from approximately 2:45pm¹⁰⁰;
- (c) at around 2:30pm, the CFA received reports that there were fires in the Mine;¹⁰¹
- (d) Alan Roach contacted the Traralgon RCC at least as early as 2:30pm, and spoke to Peter McHugh at the ICC at 2:46pm.¹⁰² Mr McHugh was the Planning Officer within the Incident Management Team at the Traralgon ICC which reported to Mr Jeremiah as the IC.¹⁰³ Alan Roach spoke to Mr McHugh on various occasions throughout the afternoon, including at just after 4:00pm when aerial photos of the Yallourn Mine were sent to him by email by Mr McHugh.¹⁰⁴ Mr Roach has given evidence that he was actively requesting CFA assistance with the fires in the Mine in at least the 4:00pm communication.¹⁰⁵ Mr McHugh's logs, only supplied by the Victorian Government Solicitor's Office on Friday, 13 June 2014, record several conversations between Alan Roach and Peter McHugh, with VGSO's covering letter acknowledging that the log is not exhaustive, as Peter McHugh recalls having additional conversations with Alan Roach not reflected in the log.¹⁰⁶

84 It is possible that Mine employees and contractors directly contacted local CFA brigades, or local CFA brigade officers, in relation to the fire activity within the Mine. A number of Mine personnel and contractors are CFA volunteers, and are likely to have been in communication with Mine personnel in relation to fire activity. For example, Romeo Prezioso spoke to a CFA officer that he encountered to the north of the Mine, who is an ex Mine employee, between approximately 1:30pm and 1:45pm in relation to the outbreak of the Driffield fire.¹⁰⁷

85 Further, there was an assumption on the part of various personnel, including Romeo Prezioso, that the CFA were aware of the fire activity from at least 2:45pm, in light of the aircraft bombing water and retardant on the Northern batters.¹⁰⁸ Commissioner Lapsley gave evidence as to the deployment by the CFA of firebombing and fire spotting aircraft.¹⁰⁹

86 Commissioner Lapsley also gave evidence to the Inquiry that by 2:30pm reports were being received by the CFA that the breakaway Hernes Oak fire was spotting into the Hazelwood

¹⁰⁰ Statement of David Shanahan (Exhibit 7), [67]; Statement of James Mauger (Exhibit 8), [38].

¹⁰¹ Lapsley, T47.4-T47.12; Harkins, T327.2-T327.8.

¹⁰² Roach T649.14 – 650.15.

¹⁰³ Statement of Lawrence Jeremiah (Exhibit 15), [25]. See also the various references to Mr McHugh in the testimony of Mr Jeremiah at e.g. T476.4, T483.15.

¹⁰⁴ Roach T651 – 655.13.

¹⁰⁵ Roach, T653.4, T654.6.

¹⁰⁶ VGSO letter 13 June 2014 (Exhibit 97).

¹⁰⁷ Prezioso, T360.25 – 31.

¹⁰⁸ Prezioso, T368.13-T368.17.

¹⁰⁹ Statement of Craig Lapsley (Exhibit 1), [92].

Open Cut Mine and was being attended to by on-site Mine fire fighting services.¹¹⁰ He further gave evidence that reports were made by Mine fire crews at the Mine and from persons situated at Energy Brix, and that a number of reports were made to 000 from members of the public reporting fires and smoke in the area, including in and around the Mine.¹¹¹

87 Further, the Minutes of the Gippsland Regional Emergency Management Team held on 9 February at 2.30pm at page 2 stated as follows:

“Hernes Oak – MacDonalds Track fire

- *This fire has escaped and is running parallel with the freeway and railway towards Morwell, in between the Coal mine.*
- *Reports that this fire is now spotting into Hazelwood Power Station.*
- *There is possible fire in the coal mine. The Traralgon ICC is working on this.”¹¹²*

88 Given the knowledge of the ICC, nothing turned on the failure by anyone at the Mine to call 000, assuming no such call was made. This is because the ICC made the decisions in relation to the application of CFA resources.¹¹³

89 The Minutes of the State Control State Control Centre Emergency Management Team meeting on Sunday, 9 February 2014 at 6:00pm stated as follows:¹¹⁴

*“Latrobe Valley has had a number of fires. The Hernes Oak fire escaped control line earlier today”.*¹¹⁵

At page 0009 there is reference to future:

*“Increasing resources in Latrobe Valley. ... There is a group setting up fire fighting in the mines and increasing resources needed to that which is being planned tonight”.*¹¹⁶

90 Commissioner Lapsley gave evidence in relation to the SEMT minutes as follows:

The SEMT minutes for the 18:00 meeting on 9 February 2014 note that the fire had escaped the control lines established on the previous day and, as the weather deteriorated in the course of the day, started spotting across to the north-western end of the Mine. I understand that the fire crews employed by the Mine were initially successful in stopping this spotting. As the winds picked up in the course of the afternoon and evening, I understand the fire then spread into the Mine. I also

¹¹⁰ Statement of Craig Lapsley (Exhibit 1), [54].

¹¹¹ Statement of Craig Lapsley (Exhibit 1), [62].

¹¹² Statement of Craig Lapsley, (Exhibit 1) [58]; FSC.0009.003.0001

¹¹³ Lapsley, T721.13 – 14.

¹¹⁴ Statement of Craig Lapsley, (Exhibit 1) [50].

¹¹⁵ FSC.0008.001.0007

¹¹⁶ FSC.0008.001.0006.

*understand that spotting may have occurred to the south-east of the point of ignition, leading to a further fire which may, itself, have then also spotted across into the western side of the Mine.*¹¹⁷

91 Although there was awareness from 2:30pm at regional and state level within the CFA that the fire had broken out and was spotting into the Mine, and from 6:00pm it was being reported within the CFA that the fire fighting was being set up in the Mine, the CFA was only able to attend in any significant numbers from approximately 8:00pm. The CFA declared itself the control agency for the fire fighting operation, at sometime between 8pm and 10pm.¹¹⁸

92 From that point, Hazelwood Mine worked in a supportive role under the CFA.¹¹⁹

Successes in the fire fighting effort on Sunday, 9 February 2014

93 The Hazelwood staff and contractors at the Mine on Sunday, 9 February 2014 did remarkably well in responding to the fire activity within and around the Mine, in very challenging circumstances. The fire fighters were supported by other essential personnel, including electricians, Mine escorts, and fire service/pump specialists.

94 These efforts have been recognised by various parties appearing before the Inquiry, including Commissioner Lapsley and Professor Incoll. Commissioner Lapsley gave evidence that the Mine staff did extremely well, not only in the deployment of their resources, but in the way they handled themselves on the day.¹²⁰ Professor Incoll said the Mine staff “*did a fantastic job in keeping the working faces clear*”.¹²¹

95 Various Mine personnel, including Romeo Prezioso and David Shanahan voluntarily attended the Mine on Sunday, 9 February 2014 in light of the fire threats posed to the Mine. A significant number of employees and contractors (including, significantly, RTL personnel) were rapidly deployed to the Mine to assist, including in circumstances where their own homes were potentially under threat from the fire activity around the Mine.¹²²

96 By mid to late afternoon, senior managers including Luc Dietvorst (Head of Generation Australia) and George Graham (Asset Manager Hazelwood) were in attendance at the Mine overseeing the emergency response. The Acting Mine Director, James Faithful, arrived at the Mine between approximately 5:00pm and 6:00pm after experiencing delays with road blocks, and assumed the Emergency Commander role by approximately 8:00pm.

¹¹⁷ Statement of Craig Lapsley (Exhibit 1), [50].

¹¹⁸ Roach Log of Events (Exhibit 25), Lapsley, T.52.4-T52.28, c/f Statement of Craig Lapsley (Exhibit 1), [93]-[95].

¹¹⁹ Shanahan, T254.6-T254.8.

¹²⁰ Lapsley, T114.9 – 12.

¹²¹ Incoll, T2167.19

¹²² Shanahan, T216.8, T218.27-T218.31; Prezioso T358.29-T358.30; Faithful, T382.8-T382.10.

97 As detailed in the Third Witness Statement of Steven Harkins, the numbers of Mine employees and contractors at the Mine on Sunday, 9 February 2014 rapidly escalated in response to the fire emergency, as follows:

- AM (before midday): 35 personnel;
- 3:30pm: 58 personnel; and
- 7:00pm: 103 personnel.

98 The efforts of Hazelwood personnel led to considerable success. For example:

- (a) the operating area in the West Field of the Mine was successfully defended initially from the Hernes Oak fire front, and subsequently from the Driffield fire front which was contained to the west side of the Morwell River. Multiple spot fires within the Mine, including spot fires on the Mine side of the Morwell River, were extinguished. This meant that virtually all plant and equipment required for the maintenance of coal winning activities was successfully protected, as were the coal reserves to enable continuation of coal winning activities and related power generation;
- (b) at least three spot fires that broke out on the operating face in the West Field of the Mine near the tail end of 620, 720 and 820 conveyors were extinguished;
- (c) a spot fire on the grass level in the south east of the Mine near the Training Centre was extinguished as it advanced towards Energy Brix; and
- (d) critical Mine assets including the MWN substation, in the path of a grass fire on the grass level in the north west of the Mine, were successfully protected with CFA assistance.

99 Importantly, this was done with no loss of life and no serious injury.¹²³

Reasons Why Certain Fires were not Contained in the Usual Manner

100 Notwithstanding the efforts of those involved at the Mine in responding to the fires, the fires on the North/North West batters, the South East/East batters and OB Dump were not contained in the usual manner. The last of these fires took some 45 days before being declared safe by the CFA, required significant CFA and Mine resources, and led to ash, smoke and air quality impacts on the township of Morwell.

101 The principal reasons for the failure to contain these fires on Sunday 9 February 2014 were as follows:

¹²³ First Statement of Steven Harkins(Exhibit 10), [111].

- (a) the multitude of external fire threats and internal spot fires that developed in a short period of time, a considerable distance apart, limiting the available work force at each location;
- (b) the weather conditions on Sunday 9 February, including strong winds which pushed fires on the northern and southern batters up and across the batters;
- (c) limited fire-fighting assistance from the CFA in the initial stages of the fire, in light of the extent of fire activity surrounding the Mine; and
- (d) the loss of power to the pumps servicing the fire service network between approximately 5pm and 6pm, due to fire damage sustained to the dual SP AusNet 66kV lines feeding Mine critical substations MWN and MWW.

102 Of these reasons, the loss of power was the most significant.¹²⁴

103 The Driffield fire was of real concern to the Mine because it was approaching the Mine rapidly, and heading directly for the Mine's main operational area, which has critical infrastructure and a significant amount of exposed coal.¹²⁵ The largest group of Mine personnel were focused on this risk to the Mine. Embers were observed to be crossing the Morwell River diversion, and without the prolonged attentions of Mine personnel, could easily have led to significant fire activity in the western part of the Mine.

104 Throughout the afternoon, groups of Mine personnel addressed each of the fires within the Mine.

105 During the evening on Sunday 9 February 2014, the Mine set priorities for asset protection, particularly, substations, power poles, coal conveyors and dredgers.¹²⁶

CFA fire fighting assistance

106 The first CFA involvement was a strike team to protect the MWN substation on the Northern Batters, together with the fire fighting team from the Mine. However, after a period of time that strike team had to be diverted away from protecting mine assets, presumably because of the threat to the township of Morwell. That part of the fire may have ultimately damaged some SP AusNet facilities which supplied the main lines of power into the Mine.¹²⁷

¹²⁴ Polmear, T2059.10 – 12; Graham, T2245.17.

¹²⁵ Prezioso, T369.21-T369.25.

¹²⁶ Prezioso, T369.1-T369.4.

¹²⁷ Lapsley T106.8-T106.27.

- 107 Otherwise, there was certain aerial support from the CFA at around 2:45pm - 3:00pm.¹²⁸ However, the CFA water bombing had no impact on the areas affected by fire.¹²⁹
- 108 At about 6:45pm, some CFA tankers arrived to assist the Mine staff in fighting the grass fire near Energy Brix.¹³⁰ The CFA Strike Team Leader reported to Mr Prezioso with four CFA tankers. However, the Strike Team was called away to attend to a property in Driffield.¹³¹
- 109 Hazelwood's initial Emergency Commander, Romeo Prezioso, recalled:
- (a) some CFA presence above the Mine's Northern Batters assisting the Mine's fire crew with the protection of the MWN substation,¹³²
 - (b) a CFA presence in the Emergency Command Centre later on the night of 9 February 2014; and
 - (c) Ross Male of the CFA arriving on site with a Strike Team of 6 tankers at around 8:00pm.¹³³

Key factors in duration of fire fighting effort

- 110 In terms of why certain of the fires burnt for 45 days, the key factors include the following:
- (a) the weather conditions on Sunday, 9 February 2014;
 - (b) the extent to which the fire was able to spread in the initial 24 hours, in light of the weather conditions, and significantly, the loss of power to the pumps;
 - (c) limitations in the initial response by CFA;
 - (d) limitations to the amount of water that could be safely applied to the fire, in light of geotechnical issues arising from excessive water volumes in floor of the Mine; and
 - (e) the lack of significant rainfall.

Loss of power

- 111 The Mine lost power at between 5:00pm and 6:00pm on 9 February 2014.¹³⁴

¹²⁸ Lapsley T108.16-T108.21; Statement of James Mauger (Exhibit 8), [38] – [41]; Shanahan, T269.28-T270.1.

¹²⁹ Shanahan, T269.28-T270.1.

¹³⁰ Lapsley T108.15-T108.22; Harkins, T343.20-T343.24.

¹³¹ Prezioso, T374.18-T374.28; Statement of Steven Harkins (Exhibit 1) Annexure 10.

¹³² Prezioso, T375.2-T375.7.

¹³³ Prezioso, T376.13-T376.18, T376.20.

¹³⁴ Harkins, T333.31, Prezioso, T373.16-T373.17.

- 112 The Mine has two major power pump stations, being the dirty water pump station and the clean water pump station, supplied from MWN and MWW.¹³⁵ The power supplied to the MWN and MWW has one level of redundancy, such that if one of the 66kV feeders is lost, the Mine's operations can continue unaffected.
- 113 MWE is a smaller feeder with 11 kV off a separate circuit.¹³⁶
- 114 All of the substations work from mains power from the external grid from SP AusNet.¹³⁷
- 115 There are a number of sources of power to the mine, including MWN which is the substation on the northern side of the batters which is the primary source of power; MWE which is situated towards Energy Brix and is a smaller source of power; and another substation feeder called MHO.¹³⁸ MWW is a further substation located on the Southern batters of the Mine.
- 116 There is an additional gravity fed water supply from Loy Yang. The water is delivered to two tanks on the ridge next to the Power Station and supplies the Mine via a gravity feed. Even though the Mine lost power to the C and D pump stations when the Northern Batters fire took down the SP AusNet power lines, the Mine was able to pump water into the mine through the additional pump stations 50 and 53 located in the Hazelwood Pondage, which was sufficient to continue with fire fighting into the C and D tanks, although with reduced pressure.¹³⁹
- 117 Some of the water was being distributed on the operational faces and some of the water was being distributed on the areas affected by the fire.¹⁴⁰ Tankers were also able to refill from tanker filling points throughout the site.¹⁴¹ There was a mains fresh water refill point on the Northern batters.¹⁴²
- 118 Power was able to be restored to substation MHO in the early morning of 10 February 2014 at around 2:00am.¹⁴³

The joint fire fighting effort

- 119 The CFA had statutory responsibility for the suppression of the fire activity at the Mine which commenced on 9 February 2014. Notwithstanding this, employees and contractors of the Mine continued to be heavily involved in the suppression effort with the CFA.

¹³⁵ Prezioso, T371.13-T371.22.

¹³⁶ Harkins, T339.24-T339.31.

¹³⁷ Prezioso, T371.26-T371.30.

¹³⁸ Harkins, T339.17-T339.23.

¹³⁹ Prezioso, T372.21-T372.31; Faithful T388.26-T388.30, T389.1-T389.8.

¹⁴⁰ Faithful, T390.4-T390.7.

¹⁴¹ Faithful, T389.10-T389.12.

¹⁴² Faithful, T389.14-T389.15.

¹⁴³ Prezioso, T377.31-T378.6.

120 The things that worked well in relation to the fire-fighting efforts at the Mine included:

- (a) the daily 1:30pm IMT meeting, which Hazelwood personnel such as Robert Dugan played a key role in relation to the setting the following day's fire fighting strategy, and organising the necessary resources;
- (b) 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;
- (c) 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 Sikorsky 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.
 - vi. 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.
 - vii. 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.
- (d) meetings at the Mine at 6am, 12pm and 6pm were 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 the Mine and CFA fire fighters worked effectively together. Daily, Hazelwood and CFA personnel would gain an appreciation of the various equipment and personnel available at the Mine;

- (e) two other two mines in the Latrobe Valley, offered a lot of help through networks such as the CGEIG, and the Mine took them up on their personnel expertise. The Mines offered before they were asked, which is indicative of the co-operation between the power generators in the Latrobe Valley when they have emergencies.
- (f) the manner in which the interstate fire fighters worked in well with the CFA and Mine command structure.

121 Difficulties encountered in the fire fighting operation included the following:

- (a) an initial absence of protocols concerning carbon monoxide exposure, which resulted in a conservative risk management approach (limiting the numbers of fire fighters in the field);
- (b) in the initial stages of the fire, limitations in the amount of available carbon monoxide screening equipment, resulting in large queues of personnel and significant amounts of down time;
- (c) teething problems with carbon monoxide (“CO”) testing equipment, which was returning ‘false positives’;
- (d) inconsistencies between successive versions of the CFA’s fatigue management and CO management policies;
- (e) delays obtaining suitable equipment for fighting fires on coal batters, such as aerial appliances, and CAFS;
- (f) rotating out local CFA personnel who had coal mine fire experience and specialised training; and
- (g) in the initial stages of the fire, poor hand over protocols between ICs.

122 In addition to the above, the amount of water being used within the Mine for the fire fighting operation had the potential to jeopardise the stability of the Mine with catastrophic consequences.¹⁴⁴ The geotechnical issues which required management involved the infrastructure located on top of the northern batters such as the Morwell Main Drain, the Princes Freeway and power assets.¹⁴⁵

¹⁴⁴ Lapsley, T.79.19-T79.21; T144.3-T145.3.

¹⁴⁵ Lapsley, T.80.08-T80.11.

- 123 The geotechnical issues were capably managed by the Mine's internal engineers, with the Department of State Development and Business Innovation ("DSDBI") providing regulatory oversight. Further, Commissioner Lapsley conferred with an expert panel from New South Wales, Queensland and Texas on issues such as safety, geotechnical part sand water balance systems on or about 16 February 2014.¹⁴⁶
- 124 Whilst fire fighters raised health and safety concerns about the quality of the water within the Mine, and how it was being used and sprayed,¹⁴⁷ testing undertaken by the CFA, EPA and Mine indicated that the water was safe for use, provided simple precautions were taken.

Specific issues raised by Community witnesses

Helicopters

- 125 Several Community Witnesses, for example William Brown, criticised the use of helicopter dumping water on a coal fire.¹⁴⁸
- 126 Whilst the Mine has previously queried the effectiveness of helicopters in coal fires, for example in a report produced in relation to a previous fire in 2005, those comments related to helicopters whose internal tanks dropped water onto the coal face. Modern helicopters that use a long rope and a bucket to allow water to drop in targeted locations from a greater height, stirring up less coal dust.¹⁴⁹
- 127 Further, use of bulldozers to apply clay onto the fire, as advocated by William Brown, in modern times is part of a strategy of extinguishment of the fire, and is not used in isolation.¹⁵⁰ In his evidence, William Brown clarified that the use of bulldozers was at an incident at the Yallourn Mine in 1977 or early 1980, along the batters.¹⁵¹ Yallourn is a much shallower mine than Hazelwood, and has different accessibility constraints.¹⁵²
- 128 William Brown had not been to the Mine in 16 years and during this time, the Mine had grown considerably.¹⁵³ Mr Brown ultimately deferred his opinion as to the usefulness of helicopters to the Commissioner.¹⁵⁴ In the Commissioner's view, increased aircraft capability (eg helicopters

¹⁴⁶ Lapsley, T.71.17-T72.23; Freshwater, T295.6-T295.9.

¹⁴⁷ Lapsley, T.80.1-T80.4.

¹⁴⁸ Statement of William Brown (Exhibit 4), [41], Freshwater, T293.15-T294.15.

¹⁴⁹ Lapsley, T.54.27-T56.13, T57.8-T57.22, T132.17-T132.18.

¹⁵⁰ Lapsley, T.131.18-T131.28.

¹⁵¹ Brown, T 178.4-T178.24.

¹⁵² Lapsley T47.23-T47.28.

¹⁵³ Lapsley, T.86.5-T86.31, Brown, T174.2-T174.5.

¹⁵⁴ Brown, T178.2-T178.3.

with large volume buckets) could have improved CFA preparedness for the fire that took hold of the Mine on 9 February 2014.¹⁵⁵

- 129 Mr Graeme Freshwater, a former Mine Hazelwood Manager, agreed that the present fire has a different scenario to the ones experienced in the past because it ignited from an external source, it affected different areas of the Mine and the Mine is about twice the size of what it was in 1977.¹⁵⁶

Foam

- 130 One of the learnings that Commissioner Lapsley indicated he obtained from the Mine fire was the need to use a combination of foam, appropriate aircraft and thermal cameras to effectively fight the fire. The supplemented system of techniques was discussed on 14 February 2014 and implemented around 17/18 February 2014.¹⁵⁷ Consideration should be given to acquiring new technology in fire detection and fire response instead of having to source such equipment from interstate and overseas.
- 131 As regards the use of foams, there was evidence that on the weekend of 15 February 2014, the CFA sought to obtain a Compressed Air Foam System from Tasmania as it does not form part of the CFA and MFB standard fleet in Victoria.¹⁵⁸
- 132 This is surprising in circumstances where CFA's control priorities are first, primacy of life, second, information to the community, and third, protection of essential infrastructure.
- 133 Hazelwood produces 25% of the State's base load electricity¹⁵⁹, and a significant incident of fire will impact not only on electricity supply to the State, but also will impact on the air quality of the citizens of Morwell.
- 134 In Hazelwood's submission, suitable air support, and aerial and CAFS appliances should be pre-positioned in the Latrobe Valley where projected weather conditions and/or Phoenix modelling indicate that there is a significant risk of fire impacting upon one or more of the Latrobe Valley mines.
- 135 Commissioner Lapsley gave evidence that there is a need to increase the availability of first response equipment in the Latrobe Valley to include CAFS and thermal imaging cameras.¹⁶⁰
- 136 Commissioner Lapsley also observed that there needs to be an improvement in the current capability of first response vehicles to provide aerial appliances (elevated nozzles).¹⁶¹

¹⁵⁵ Statement of Craig Lapsley (Exhibit 1), [207.2].

¹⁵⁶ Freshwater, T294.20-T294.27.

¹⁵⁷ Lapsley, T137.31-T139.8.

¹⁵⁸ Lapsley, T71.24-T74.24.

¹⁵⁹ Lapsley, T142.21.

Access issues

- 137 There was some evidence from community witnesses about attending to a fire at Energy Brix, where they had trouble gaining entrance through a side gate.¹⁶² This gate was wrongly identified as belonging to the Mine. The Morwell Fire Brigade has a swipe key to the Mine but it had left it behind at the station. The gate and fence that Mr Lalor described belongs to Energy Brix, and not the Mine and the strike team was fighting a grass fire on Energy Brix's property.¹⁶³
- 138 Evidence was provided to the Inquiry that David Shanahan opened a perimeter gate to the north of the Mine,¹⁶⁴ and that when power was lost to the eastern side slide gate for a period of time due to fire damage to the electrical supplies, the gate was locked in an open position, allowing ready access.¹⁶⁵
- 139 The CFA would have been able to resort to the standard operating procedure of using bolt cutters to gain access through the Mine's fence.¹⁶⁶
- 140 Further, the CFA at all times were able to gain access to the Mine through the main gate on Brodribb Road, manned by Diamond Protection.¹⁶⁷

Debris at Mine

- 141 Whilst evidence provided to the inquiry of burnt out cars, and other debris within the Mine licence area, the witness appeared to be in fact referring to the Morwell Industrial Estate, to the north east of the Mine.

Mine Fire Services Crew

- 142 Community witnesses observed that during the SECV days, there was a dedicated fire fighting group at the Mine. This has been taken over by the 1 x 7 Services Day Operations Group who have the primary responsibility within the Mine for managing operation and maintenance of the Fire Service, dewatering systems, patrolling for fire and conducting wetting down and fire response.¹⁶⁸ The 1 x 7 crew have two shifts and work a seven day shift during the day. There are two 1 x 7 crew rosters.¹⁶⁹

¹⁶⁰ Statement of Craig Lapsley (Exhibit 1), [207.1].

¹⁶¹ Statement of Craig Lapsley (Exhibit 1), [207.3].

¹⁶² Statement of Anthony Lalor (Exhibit 14), [14].

¹⁶³ Prezioso, T375.8-T375.31.

¹⁶⁴ Prezioso, T375.31-T276.1.

¹⁶⁵ Prezioso, T378.20-T378.26.

¹⁶⁶ Lapsley, T112.17 – 23.

¹⁶⁷ Prezioso, T379.29-T380.6.

¹⁶⁸ Statement of David Shanahan (Exhibit 7), [6], Shanahan, T207.23-T207.27.

¹⁶⁹ Harkins, T313.13-T313.28.

- 143 Although Community Witnesses William Brown, Graeme Freshwater and Rob Gaulton made comments about the SECV having a dedicated fire fighting crew at the Mine, Mr Brown's own evidence indicated that in 1994, which was pre-privatisation, his role in the Hazelwood Mine Fire Service changed to Support Services, in addition to his Fire Services position, which required him to look after everything in the Mine that was non-operational. This included relocating the Mine's conveyor systems for dredging operations, drainage and other ancillary works, to ensure coal-winning and operational requirements were not compromised.¹⁷⁰
- 144 Nowadays, the 1 x 7 services day operations group have the primary responsibility within the Mine for managing operation and maintenance of the fire service and dewatering systems, patrolling for fire, and conducting wetting down and fire response.¹⁷¹
- 145 Fundamentally, the role has not changed since privatisation¹⁷², and the coverage provided by the number of personnel available for fire services duties is greater than at the time of privatisation.¹⁷³

¹⁷⁰ Statement of Brown (Exhibit 4), [7], Brown T156.10-T156.25; Submission of Graeme Freshwater (Exhibit 9, item 3); Statement of Rob Gaulton (Exhibit 60), [26].

¹⁷¹ Statement David Shanahan (Exhibit 7), [7].

¹⁷² Brown, T156.10 – 22.

¹⁷³ Graham, T2243.3 – 11.

SECTION TWO: HEALTH AND ENVIRONMENT

Monitoring of ambient quality of air: licence and regulatory conditions

- 146 The Hazelwood Power Station and Mine are licensed by Environment Protection Authority (EPA) pursuant to Licence number 46436.¹⁷⁴ The Mine reports its environmental performance for the previous financial year in the form of an annual performance statement (APS). The APS assesses its performance against each licence condition.¹⁷⁵
- 147 For the purposes of section 20 of the *Environment Protection Act*, Hazelwood operates a premises at which activities are undertaken that fall within the definitions in Schedule 1 of the Environment Protection (Scheduled Premises and Exemptions) Regulations 2007 and as such is considered a 'scheduled premises'. The premises plan includes both the Power Station and the Mine. The Mine is subject to certain exemptions under the Regulations pertaining to air emissions and waste storage.¹⁷⁶
- 148 Under the Mine Licence, two emissions are monitored by the EPA pursuant to its regulatory role in relation to the Power Station and the Mine, being the stacks at the station (which have precipitators for filtration)¹⁷⁷ and the discharge from the ash ponds.¹⁷⁸ There is no monitoring of unplanned discharges such as risks arising from uncontrolled fire.¹⁷⁹
- 149 It is noted that the EPA Enforcement Review Panel has approved an official investigation into the Hazelwood Mine Fire. The investigation is at an early stage and extensive investigative work is still to be undertaken. No decision has yet been made regarding any compliance action.¹⁸⁰
- 150 The Mine Licence does not impose requirements relating to air quality monitoring for the Mine, or for environmental (ambient) air that could be affected by emissions from the power station and mine: see Richardson Supplementary report. In Claire Richardson's experience, Queensland and New South Wales are required to complete monitoring of particulates relevant to Australian Standards as a licence requirement.¹⁸¹ Ms Richardson and Dr Torre jointly recommended that a review of air emission licences and air monitoring industry programs in industry with a focus on PM2.5 in the Latrobe Valley be undertaken. In their view, continuous particulate monitoring at the Mine could assist with data to inform public health responses in the event of emergency situations. It is noted that Mr Merritt's evidence confirmed the history of significant improvement in air quality in the valley during a 12 month specific air quality study

¹⁷⁴ Statement of John Merritt (Exhibit 32), [191].

¹⁷⁵ Statement of John Merritt (Exhibit 32), [192].

¹⁷⁶ Statement of John Merritt (Exhibit 32), [194].

¹⁷⁷ Merritt, T865,30-31.

¹⁷⁸ Merritt, T820.21-T821.19; T858.9-20.

¹⁷⁹ Merritt, T858.19-20; Statement of John Merritt (Exhibit 32), [198].

¹⁸⁰ Merritt, T858.21-29; Statement of John Merritt (Exhibit 32), [203].

undertaken between February 2012 and May 2013 at Morwell East and Traralgon.¹⁸² Mr Merritt observed that over the 15 months of environmental assessment undertaken, levels of PM10 were above the standard at both sites for 4 days at Traralgon and 6 days at Morwell East. For PM2.5, the levels were above the reporting standard for 7 days at Traralgon and 5 days at Morwell East. These levels in excess of the standards were mainly attributable to significant smoke impacts from a local bushfire in January 2013 and planned burning in May 2013.¹⁸³ Given that the air quality data for Morwell East and Traralgon indicated that they were comparable, the EPA decommissioned the Morwell East station at the end of the study (although by early 2014 EPA had not completely demobilised the temporary fixed air monitoring station).¹⁸⁴

- 151 If a state wide rapid response capability for air quality monitoring and assessment in Victoria is developed together with the supply of essential services with air monitoring sensors to provide an indication of smoke levels¹⁸⁵ then the additional monitoring on the Mine perimeter may not be necessary as data will then be available to inform the initial public health response in the event of an emergency situation.
- 152 Further, the EPA has committed to upgrade the Traralgon site to detect PM2.5 and the mobile laboratory located at Morwell South at the bowling club will continue for 12 months. If there is a detectable difference in the data between the two sites, then the EPA will consider whether the Morwell South site should be made permanent.¹⁸⁶ This will provide data for the long-term health study and community confidence in the ambient air quality.
- 153 If the proposal for permanent monitoring around the Mine's perimeter is to assist in an early warning system, the EPA's forecasting facility is a function that is already being utilised at the Traralgon station in conjunction with satellite imagery.¹⁸⁷
- 154 Given the EPA's findings from the 2012/2013 study that, save for the 5 days in Morwell East of PM2.5 precedents as a result of bushfire and planned burning activity around the Latrobe Valley, the air quality in the valley was generally very good and had improved significantly over the years, it appears that additional permanent monitoring may not be necessary given that the levels are within the acceptable range.

¹⁸¹ Supplementary Report of Ms Claire Richardson (Exhibit 40), [37]-[39].

¹⁸² Statement of John Merritt (Exhibit 32), [84]; Merritt, T820.28-T821.11.

¹⁸³ Statement of John Merritt (Exhibit 32), [85]; Merritt, T813.10-21.

¹⁸⁴ Merritt, T818.1-5; Statement of John Merritt (Exhibit 32), [88].

¹⁸⁵ See Richardson and Torre Joint Report (Exhibit 41).

¹⁸⁶ Merritt, T853.1-T854.9.

¹⁸⁷ Merritt, T854.21-27.

Monitoring during the fire

- 155 The EPA has very limited air monitoring equipment for measuring air emissions from emergency incidents.¹⁸⁸ The primary limitation is that the EPA is not designed for rapid response air monitoring, nor does it have access in-house to appropriate portable instrumentation to enact rapid deployment to measure the ambient air quality.¹⁸⁹ Typically, there is a lead in period of one month before the decision to take readings and to deploy a mobile laboratory.¹⁹⁰
- 156 There is an acknowledged gap in the scientific knowledge of the health effects of the impacts of PM2.5, with different people having different sensitivities.¹⁹¹ There is a lack of scientific agreement about any safe level and what that safe level might be.¹⁹² Further, John Merritt, former CEO, EPA stated that *"[t]he experience of the Hazelwood Mine Fire was unprecedented and created numerous challenges for EPA - the duration of the fire, the repetitive impacts of the smoke, its static source and proximity to the community made this an incident of a unique scale."*¹⁹³
- 157 Claire Richardson, Air Noise Environment Pty Ltd, opined that *"it would be unusual for a continuous air quality performance monitoring station, a 'reference station', operated by a State regulatory agency to be located in a suitable position for monitoring of emissions from specific air pollution incidents such as the Hazelwood Mine fire."*¹⁹⁴
- 158 The permanent monitoring station located in Traralgon monitored PM10 but not PM2.5 (although there had been a decision to upgrade the station to monitor PM2.5, this had not been implemented as at 9 February 2014).¹⁹⁵ The EPA was able to use this indicative date in the early stages of the fire.¹⁹⁶ During the first week of the fire, handheld carbon monoxide monitors and hired DustTraks were used to obtain log data for PM2.5.¹⁹⁷ The travel blanket (a portable monitor for both CO and fine particles) had to be obtained from Tasmania and was available for the first time on 20 February 2014.¹⁹⁸ The first fully quality-controlled publishable PM2.5 data from the Morwell South station was made available on 19 February 2014.¹⁹⁹

¹⁸⁸ Supplementary Statement of Dr Paul Torre (Exhibit 38), [4].

¹⁸⁹ Joint Report of Ms Claire Richardson and Dr Paul Torre (Exhibit 41), (e).

¹⁹⁰ Merritt, T838.28-31.

¹⁹¹ Joint Report of Ms Claire Richardson and Dr Paul Torre (Exhibit 41), (f); Merritt, T802.27-T804.2.

¹⁹² Merritt T803.1-T805.4.

¹⁹³ Statement of John Merritt (Exhibit 32), [14].

¹⁹⁴ Supplementary Statement of Claire Richardson (Exhibit 40), [10].

¹⁹⁵ Merritt, T811.26-28; T818.12-17.

¹⁹⁶ Merritt, T823.8-11

¹⁹⁷ Merritt, T822.21-31.

¹⁹⁸ Merritt, T831.31.

¹⁹⁹ Statement of John Merritt (Exhibit 32), [125].

- 159 Hazelwood supports the recommendation that the EPA have at least one travel blanket in Victoria (obtained from Tasmania during the fire) to monitor PM2.5 levels. The travel blanket took 10 days to arrive from Tasmania.²⁰⁰ It is reasonable to assume that a State the size of Victoria should have at least one travel blanket available for a rapid response facility. Dr Torre gave evidence that there has been an assessment of new deployable equipment to be purchased on review of the aftermath of the fire. There has been a commencement of the process to purchase a travel blanket.²⁰¹ Further, instead of hiring DustTraks, such resources ought to be part of the EPA's rapid response capability.
- 160 Dr Torre, Team Leader of Assessment and Predictions within the EPA, gave evidence that his team had recently been reduced and resources could be improved if he could be assigned a replacement air quality scientist.²⁰²
- 161 The EPA was mobilising the resources that it had available to it as best as it could given the circumstances and in terms of the air quality program, that it is not designed for emergency incidents. However, given the need to measure PM2.5 in particular because of its known adverse health effects, the resources needed to be made available earlier to inform the health response in the first week of the fire.

Communications

One Source One Message

- 162 Commissioner Lapsley gave evidence that following the 2009 bushfires:

Victoria introduced an integrated warnings system based upon the principle of 'One Source One Message'. This provides warnings to communities through such means as the emergency broadcasters, websites, social media channels, the FireReady mobile application, the Victorian Bushfire Information Line and the national Emergency Alert telephone warning system. This messaging also supports community liaison, community meetings, and direct media engagement. Advice and warnings are issued to communities in the path of, or likely to be affected by, a fire or incident. The naming of advices and warnings is based upon the communities likely to be affected and not upon the fire or incident itself. Where multiple fires occur in a single area, a single message to multiple communities may encompass more than one fire, hazard or emergency activity.²⁰³

- 163 On the evening of 9 February 2014, the CFA declared that it was the controlling agency in relation to the fire. Under the principle of "One Source One Message" and pursuant to s 24 of the *Fire Services Commissioner Act*, all public communications were co-ordinated through the

²⁰⁰ Merritt, T840.1-20.

²⁰¹ Torres, T997.28-T998.15.

²⁰² Torre, T945.15-T946.5.

CFA.²⁰⁴ The rationale was adopted followed the 2009 bushfires to ensure there was a common view about the incident and that communication was consistent.²⁰⁵

164 Hazelwood has come under a great deal of community criticism for its perceived lack of communication during the incident. However, it is clear that pursuant to the CFA principle of “*One Source One Message*”, the Mine was required to allow the CFA to conduct communications with the community.²⁰⁶ Commissioner Lapsley held the view that this was the proper manner in which communication should take place as the State needed to be the single authority, and if the Mine had established its own line of communication with the community then “*it would be confusing.*”²⁰⁷

165 Mr Simon Ellis, the former president of Voices of the Valley, agreed that there should be one line of communication. However, he noted that the one line of communication needed to be communicated properly.²⁰⁸

GDF Suez Australian Energy Communication with the Community

166 In their expert reports, Professor Jim Macnamara and Lachlan Drummond were also initially critical of Hazelwood’s communications strategies during the fire, in particular, about not attending public meetings at Kernott Hall in Morwell and expressing concern as a form of best practice.²⁰⁹ At the time of drafting his report, Professor Macnamara had only been briefed with four media releases, the first issued on 11 March 2014; the \$100 gift vouchers sent to 6,700 homes in Morwell; and a statement from George Graham, Asset Manager of GDF Suez.²¹⁰ The Professor acknowledged that there was “*a lot more*”²¹¹ additional information that he was not aware of at the time of writing his report, including:

- (a) the Hazelwood Emergency Response Plan and Mine Fire Service Policy and Code of Practice which contain policies on crisis and communication preparation,²¹²
- (b) the telephone hotline that Hazelwood had established so that the community could contact the Mine and have a response to their questions;²¹³

²⁰³ Statement of Craig Lapsley (Exhibit 1), [150].

²⁰⁴ Statement of Craig Lapsley (Exhibit 1), [150]; Lapsley, T99.20-T99.24.

²⁰⁵ Lapsley, T100.22-T100.29.

²⁰⁶ Lapsley, T129.24-T130.23.

²⁰⁷ Lapsley, T130.23.

²⁰⁸ Ellis, T894.6-8.

²⁰⁹ Prof. Jim Macnamara and Lachlan Drummond, T1309.25-1312.13, T1324.17-21; Statement of Professor Jim Macnamara (Exhibit 5), [2.1], [2.8], pp 42-46, Statement of Lachlan Drummond (Exhibit 51), [6.4.5].

²¹⁰ Prof. Jim Macnamara, T1322.7-23.

²¹¹ Prof. Jim Macnamara, T1330.17-24.

²¹² Prof. Jim Macnamara, T1323.28-31, T1325.7-1326.8.

²¹³ Prof. Jim Macnamara, T1329.17-25.

(c) internal communications that the Mine circulated to its 800 employees who are also residents and members of the community (the communications were also provided to politicians, CFA, and a number of departments);²¹⁴ and

(d) Hazelwood's paid advertisements in the local newspaper, commencing on 20 February 2014.²¹⁵

167 Professor Jim Macnamara conceded that he saw evidence of very strong communication between the Mine and all the various authorities, which was critically important to avoid inconsistencies in communication with the community.²¹⁶

168 Professor Jim Macnamara agreed that there was a tension behind the "*one voice one message*" statement and being able to manage corporate image effectively. It was a very delicate balance.²¹⁷ He recognised that this prompted the Mine to take out paid advertisements in the Latrobe Valley Express, the local paper, to be more visible to the general public.²¹⁸

169 In relation to Professor Jim Macnamara's criticism of the statements made in the paid advertisements, being:

(a) "*This is the most serious event that's ever confronted the mine*" found at paragraph 2;²¹⁹ and

(b) "*We fully understand the inconvenience and concern that the smoke and the fires caused people for people living in surrounding areas*"²²⁰

were matters about which minds could differ. The truth was that this was the most serious fire that had ever occurred at Hazelwood. In relation to paragraph (b), he said that he would have chosen to have written the sentence in clearer and stronger terms.²²¹ However, paragraph (b) does explicitly deal with the issue of "*concern*" for the community, contrary to Professor Macnamara's observations at page 42 of his report.

170 Similarly, in relation to the \$100 gift vouchers, Professor Macnamara conceded that his criticism of the "*Revive Morwell*" initiative was subjective and he assumed it was compensation rather than an attempt to inject funds back into the business of Morwell.²²²

²¹⁴ Prof. Jim Macnamara, T13331.14-23; T1333.19-23.

²¹⁵ Prof. Jim Macnamara, T1323.1-17.

²¹⁶ Prof. Jim Macnamara, T1331.1-13.

²¹⁷ Prof. Jim Macnamara, T1335.4-11.

²¹⁸ Prof. Jim Macnamara, T1334.18-1335.11; Annexure 5 to the Second Statement of Steve Harkins (Exhibit 29).

²¹⁹ Prof. Jim Macnamara, T1309.7-14; T1336.9-24.

²²⁰ Prof. Jim Macnamara, T1338.13-23.

²²¹ Prof. Jim Macnamara, T1339.4.

²²² Prof. Jim Macnamara, T13346.10-1347.31.

- 171 Mr Drummond claimed that Hazelwood was “*noticeably absent in any communications. No public statements were issued despite the fact that many in the community expected their involvement to be much greater. Some thought that the mine operator appeared to hide behind Craig Lapsley. Community consultations revealed that the lack of communication with the community by GDF Suez appeared to show a lack of commitment and responsibility toward the community.*”²²³
- 172 Mr Drummond accepted that the fact that Hazelwood was not prominent, particularly in the early stages of the fire, was a result of the application of the “*one source, one message*” policy.²²⁴
- 173 Both experts claimed that Hazelwood should have attended the two community meetings, even if the subject matter was about health issues.²²⁵ However when pressed, they acknowledged that the Government Departments had primary responsibility, and if the meetings are well chaired and well co-ordinated, the chair could explain to the public the roles of the different agencies such that it was acceptable for the Mine to not comment on issues of health and the fire fight.²²⁶
- 174 The evidence of Ms Merita Tabain, Emergency Management Joint Public Information Committee, was that the chair of the public meetings was a volunteer, one of her communications officers, who was inexperienced, untrained and had no control over the meeting. She noted that even local heroes could experience difficulties such as a GP who tried to give health explanations but was “*held [sic] down by the community*”.²²⁷ This contrasts starkly with Professor Macnamara’s suggestion that local GPs would be a good example of “*a trusted network of communication*”.²²⁸ The reality is that the community meetings were not the well managed meetings that the experts suggested would enable Hazelwood to have a presence whilst avoiding inconsistent messages.²²⁹ The community was not actually receptive to a person with local experience, knowledge and a trusted source in the community, such as the local GP. Ms Tabain said that she was “*a little horrified*” and doubted that her communications officer would volunteer his services again.²³⁰

²²³ Report of Lachlan Drummond (Exhibit 51), [6.4.5].

²²⁴ Drummond, T 1341.5-15.

²²⁵ Prof. Jim Macnamara, T1312.10-15.

²²⁶ Prof. Jim Macnamara, T1343.12-15, T1344.1-18.

²²⁷ Tabain, T1384.31-1385.8. Presumably, this should read “howled down”.

²²⁸ Prof. Jim Macnamara, T1318.21-31.

²²⁹ Drummond, T1352.6-15.

²³⁰ Tabian, T1400.15-21.

175 Ms Tabain's description of the atmosphere at the community meetings was consistent with the evidence of community witnesses who recounted stories of the angry attendees and observed that the meetings were not well run: see, for example, Statements of Lisa Wilson and Robert Jackman who said that:

- (a) the meetings were not well organised or chaired and quickly got out of control;²³¹
- (b) a lot of the attendees were very angry;²³²
- (c) the level of distrust was already in existence within the community.

Ms Wilson also gave evidence that the meetings were hijacked by activists.²³³

176 Similarly, the EPA noted that it was criticised for its communication as a result of the one issue and one source principal in relation to issues of health.²³⁴ Mr Merritt noted that the community did not trust the message and there was a strong need for verification of the message from within the community as they did not accept the one message, one source and did not believe the source and did not accept what was being said.²³⁵

177 Ms Tabain said that the level of trust in the Morwell community did not exist before the situation arose. Some members of the community had experienced a number of traumas and issues, particularly with asbestos, resulting in a level of distrust of authority figures. In her view, there was always going to be a struggle to be heard in the manner postulated by Prof. Jim Macnamara and Lachlan Drummond.²³⁶ Even if empathy was being communicated, in circumstances where a community has "*put the shutters up*" it would not be heard.²³⁷ Ms Tabain also noted that the references to the feedback from community consultations relied on by Prof. Jim Macnamara and Lachlan Drummond was not reflective of the whole community of Morwell.²³⁸ They were only one element of the community.

178 Hazelwood is supportive of EMJPIC further workshopping its lessons learned, including recommending that a senior person undertake an early assessment involving more than just analysing statistics and the census for demographics, also taking into account the community's history, issues, experiences and particular make-up to guide a strategic approach to communications in the future.²³⁹

²³¹ Statement of Robert Jackman (Exhibit 71), [12].

²³² Statement of Robert Jackman (Exhibit 71), [11].

²³³ Wilson, T1955.7-18.

²³⁴ Merritt, T862.2-15.

²³⁵ Merritt, T862..22-29.

²³⁶ Tabain, T14165.28-1416.29.

²³⁷ Tabain, T1426.10-23.

²³⁸ Tabain, T1418.15-30.

²³⁹ Tabain, T1419.18-27; T1385.15-1389.26.

179 Hazelwood is undertaking a review of its communications strategy that will take into account the observations of Prof. Jim Macnamara and Lachlan Drummond, namely:

- (a) clearer guidelines on how the one source, one message principle permits companies to promote its own image;
- (b) better understanding the demographic and social characteristics of the Morwell community;
- (c) building contacts in advance of any crisis such as community leaders, networks, relationships with editors and publishers of local papers; and
- (d) building an effective team to rally quickly during an emergency event.²⁴⁰

Development of joint CO and PM2.5 Protocols

180 The Chief Health Officer (**CHO**), Dr Rosemary Lester gave evidence that the brown coal located in the Latrobe Valley is unique. It produces different smoke from other brown coal and bushfires in that it has lower levels of key pollutants such as nitrogen and sulphur. The CHO said that:

*"... composition of brown coal from the Latrobe Valley means that the smoke produced when it is burnt contains water, ash (large particles), fine particles, carbon dioxide, carbon monoxide and polycyclic aromatic hydrocarbons. Bushfire smoke is a mixture of different-sized particles, water vapour and gases, including carbon monoxide, carbon dioxide and nitrogen oxides. As with bushfire smoke, fine particles present the greatest risk to public health from a brown coal fire."*²⁴¹

181 Dr Lester further observed that:

*"Fine particles in smoke are known as PM10 and PM2.5 and are small enough to be breathed deep into lungs and can aggravate existing heart or lung conditions, including asthma."*²⁴²

182 However, the CHO noted that once the exposure to the fine particles is removed, the body recovers quickly.²⁴³

183 The Bushfire Smoke Protocol was developed after the 2006-2007 alpine bushfires.²⁴⁴ The protocol is based on air quality categories that are determined principally by PM10 measurements, given that at the time, the vast majority of EPA monitoring was based on PM10. In more recent years, there has been a better understanding of the health effects of PM2.5, however, the standard for assessing health effects has been based on PM10.

²⁴⁰ Drummond, T1278.11-27.

²⁴¹ Statement of Dr Rosemary Lester (exhibit 46), [30]-[31]; Lester, T1130.4-T1131.18.

²⁴² Statement of Dr Rosemary Lester (exhibit 46), [33].

²⁴³ Lester, T2245.3-24.

²⁴⁴ Lester, T1124.25-1126.18 ; Statement of Dr Rosemary Lester (exhibit 46), [19]-[20], Attachment 5.

- 184 Currently, there is only an advisory standard for PM2.5. One of the difficulties in setting a National Standard has been the lack of scientific agreement as to a safe level.²⁴⁵
- 185 On 25 February 2014, the Department of Health began developing a PM2.5 Health Protection Protocol (as an appendix to the Bushfire Smoke Protocol) (PM2.5 Protocol).²⁴⁶ The PM2.5 protocol which was jointly agreed with the EPA and IC deemed it appropriate that strong advice for temporary relocation would be given if there was predicted to be more than 250 µg/m³ for a three-day period.²⁴⁷
- 186 On 4 March 2014, the Department of Health engaged Toxikos to undertake a peer review.²⁴⁸ The CHO also received advice from the EnHealth Standing Committee of the Australian Health Protection Principal Committee (**AHPPC**), and the AHPPC itself.²⁴⁹ The feedback received from the New South Wales Health Department was that the PM2.5 protocol was overly cautious in relation to the relocation advice.²⁵⁰
- 187 Further, on the weekend of 15 February 2014, the CFA recorded elevated CO levels around the perimeter of the Mine and based on those readings, the IC issued an emergency alert to people on the southern side of Morwell.²⁵¹ The CHO did not agree with the IC's decision to issue a "*shelter in place*" alert as it was based on an instantaneous (or spot) reading on the Mine perimeter, as opposed to an hourly rolling on average definitive reading from within Morwell itself - whereas CO dissipates quickly.²⁵²
- 188 On 16 February 2014, the CHO and her staff, in conjunction with the IC, commenced development of a CO Protocol to assist with sound decision-making as to the levels of CO and what actions ought to be taken in light of expected duration of the plumes and the location of the levels.²⁵³
- 189 On 25 February 2014, the Department of Health engaged Toxikos, an independent toxicology consulting firm, to undertake a peer review of the CO policy.²⁵⁴
- 190 Unknown to the CHO, the EPA also had the CO protocol peer reviewed by two epidemiologists, Dr Fay Johnston and Professor Ross Anderson, who expressed concern about the appropriateness of the levels chosen and, in particular, whether, over a prolonged event such

²⁴⁵ Merritt, T 803.28-T805.4.

²⁴⁶ Statement of Dr Rosemary Lester (exhibit 46), [63], Attachment 11.

²⁴⁷ Lester, T1174.25-28; T1177.15-19.

²⁴⁸ Statement of Dr Rosemary Lester (exhibit 46), [64], Attachment 12; Lester, T1178.11-19.

²⁴⁹ Statement of Dr Rosemary Lester (exhibit 46), [64], Attachment 13; Lester, T1178.20-31.

²⁵⁰ Statement of Dr Rosemary Lester (exhibit 46), [64], Attachment 13; Lester, T1178.20-31; Lester, T1214.9-26.;

²⁵¹ Statement of Costa Katsikis (Exhibit 21), [20]; Lester, T1151.22-T1152.3; Statement of Dr Rosemary Lester (exhibit 46), [54].

²⁵² Lester, T1153.1-12; T1218.19-21

²⁵³ Lester, T1154.16-31; Statement of Dr Rosemary Lester (exhibit 46), [55], Attachment 8.

²⁵⁴ Statement of Dr Rosemary Lester (exhibit 46), [57], Attachment 9.

as the Mine fire, it was appropriate to use the acute exposure standard.²⁵⁵ It was suggested that much lower trigger levels should be included in the protocol. Dr Lester gave evidence that she was not aware that the EPA had the protocol peer reviewed separately.²⁵⁶

191 The EPA has not provided the Department of Health with any separate peer review of the PM2.5 joint protocol. However, the CHO agreed that it would be of benefit for the PM2.5 protocol to be reviewed by Dr Fay Johnston and Professor Ross Anderson, the same epidemiologists who had reviewed the CO policy.²⁵⁷

192 The CHO welcomed the recommendation made by Dr Torre and Ms Richardson in their joint report that a fuller review of both of the CO and PM2.5 protocols be undertaken by an expert panel to examine required emergency protocols with a focus on the response mechanisms based on the defined threshold levels and operational focus.²⁵⁸

193 Hazelwood supports the recommendations that:

- (a) the EPA and Department of Health's joint protocols devised quickly during the fire for CO and PM2.5 undergo a comprehensive peer review or a more detailed review by an expert panel with more time to analyse the recommendations contained therein; and
- (b) there should be an Australian Standard for PM2.5 exposure for consistency government and industry wide.²⁵⁹

194 Following reporting of the results of the above, Hazelwood will of course use that knowledge as a foundation for the development of a joint CO protocol with the CFA.

Long Term Health Study

195 Dr Lester noted that the present scenario falls into a gap in the current medical and scientific literature as it does not fit neatly either short-term or long-term health studies, stating that:

"[w]hilst the short term health effects of short term exposure, and the long term health effects of long term exposure, to smoke are well understood, DH has identified that there is a gap in medical understanding of the long term health effects from exposure to smoke for a period similar in length to the Hazelwood Coal Mine Fire. In order to identify any unexpected long term

²⁵⁵ Statement of John Merritt (Exhibit 32), Tab 82.

²⁵⁶ Lester, T1187.4-15; Professor Campbell, T1245.11-T1248.9.

²⁵⁷ Lester, T1188.13-18.

²⁵⁸ Lester, T1188.19-22; Joint Report of Ms Richardson and Dr Torre (exhibit 41), (g).

²⁵⁹ Merritt, T866.14-22; Torres, T995.25-T996.18.

health effects, and to contribute to the knowledge in this area, DH has committed to undertaking a long term health study".²⁶⁰

196 The CHO observed that:

*"... the Hazelwood Coal Mine Fire obviously was a very complex and almost unique event in its scale and magnitude, so the exceedances are written for usual conditions. I think something of the scale and magnitude of this is, as you've heard from other witnesses, is really quite complex and unique."*²⁶¹

197 The Morwell community is obviously very concerned about the long term health effects of their exposure and as a result the Department of Health is committed to a long-term health study.²⁶² Part of the purpose of the study to ensure that the Department of Health has appropriate health services and support to ensure that anyone who may be affected by this event has adequate health services and support.²⁶³ Thus, in addition to providing information, the long term health study is intended to be a form of additional health care intervention if required by a particular individual.²⁶⁴

198 Hazelwood supports the recommendations that:

- (a) the Department of Health's long term health study of the effects of the fire run for longer than the 10 year period currently adopted; and
- (b) the CHO should recommend that the health study run for 20 years or more as there is a gap in the literature as to the long term effects of exposures to smoke coming in peaks.²⁶⁵

Lessons Learnt on Health and Environment

Community Engagement

199 GDFSAE directly engages with the Latrobe Valley community through four main initiatives:

- (a) Donations to Landcare: This is a national network of thousands of locally-based community groups, who care for the natural resources of our country. Landcare has initiatives that focus on improving farmland and bringing back trees.

²⁶⁰ Statement of Dr Rosemary Lester (exhibit 46), [39]; Lester, T1137.4-T1138.20; Professor Campbell, T1243.1-22.1

²⁶¹ Lester, T1133.21-29; Statement of Dr Rosemary Lester (exhibit 46), [48].

²⁶² Lester, T1137.16-19; Statement of Dr Rosemary Lester (exhibit 46), [92].

²⁶³ Lester, T1215.4-9; T1220.19-26.

²⁶⁴ Lester, T1221.8-12.

²⁶⁵ Lester, T1193.16-25.

- (b) Donations to FareShare: GDFSAE was instrumental in bringing FareShare to the Latrobe Valley. FareShare provides free, tasty, nutritious meals to Victoria's hungry, using donated food not needed by supermarkets, farmers and markets. As a result of GDFSAEs involvement, FareShare now serves over 3,000 meals per month to the hungry in the Latrobe Valley.
- (c) Education: GDFSAE has assisted in establishing educational centres, for example in relation to the education of electrical power engineering students. Hazelwood also takes on engineering students (at the end of the second year of their four year degree), to provide them with work experience and contributes to their university fees.
- (d) In addition, GDFSAE is involved in a number of community sponsorships in the Latrobe Valley: Examples of these community sponsorships include sponsorship of the Gippsland Power TAC Cup team (the under 18 elite AFL team that plays in the Victorian based TAC Cup). GDFSAE also donates to the CFA and its donations to assist in the recovery from Black Saturday was approximately \$500,000. There are lots of other examples, such as donations to the local kindergarten and church groups and Steve Harkins estimated that GDFSAE injects on average around \$500,000 per year into the Latrobe Valley community each year.²⁶⁶

200 In addition, Hazelwood is one of the largest contributors to the Latrobe Valley economy, in that it:

- (a) directly employs approximately 500 staff directly, with salaries totalling approximately \$90 million per year;
- (b) engages 300 contractors, with fees of approximately \$30 million to \$40 million per year; and
- (c) purchases supplies, materials and services totalling approximately \$30 million to \$50 million per year.²⁶⁷

201 On 1 April 2014, the Mine made a donation of \$50,000 to the Gippsland Emergency Relief Fund, to assist the community in its relief effort.²⁶⁸

202 The Mine is involved in two revival initiatives for the Morwell community.

203 First, the Mine has established a Community Social Capital Committee made up of key community group representatives at grass-roots level to identify initiatives and programs to build community social capital in Morwell. The Mine has made \$500,000 available to this Committee, which is comprised of the following community groups:

²⁶⁶ Second Statement of Steven Harkins (Exhibit 29), [52], Harkins, T1537.15-1538.31.

²⁶⁷ Second Statement of Steven Harkins (Exhibit 29), [53], Harkins, T1539.1-11.

²⁶⁸ Second Statement of Steven Harkins (Exhibit 29), [76], Harkins, T1563.6-11.

- (a) Advance Morwell;
- (b) Rotary Club of Morwell;
- (c) Lions Club of Morwell;
- (d) Enjoy Church;
- (e) Salvation Army; and
- (f) Morwell Neighbourhood House.²⁶⁹

204 Secondly, after eight weeks of planning, the Mine commenced an initiative that ran from 26 May 2014 to 31 May 2014, called “*Revive Morwell*”. It had originally been planned to commence this initiative before Mother’s Day, however it was not possible due to logistical issues. Under the initiative, each residential address in Morwell received a \$100 pre-paid card which could only be spent in the Morwell retail sector. There are 6,658 households in Morwell, so the initiative was a direct financial injection by the Mine of over \$650,000 to the Morwell retail sector.²⁷⁰

205 Further, Mr Harkins met with the John Mitchell, the Acting Chief Executive Officer of the Council in the latter weeks of the fire, and advised him that Hazelwood wanted to contribute \$100,000 towards community asset clean-up. A lot of relief work had already been undertaken by the Council with the funding from the Victorian Government, GDFSAE currently holds the \$100,000 for the purpose of “*community events to bring people into Morwell*”.²⁷¹

206 GDFSAE meets quarterly with the Environmental Management Committee which reviews the Mine’s environmental performance and is made up of citizens, members of the Latrobe Valley and the EPA.²⁷² It also meets regularly with other community leaders and local government members comprising Advance Morwell once a quarter.²⁷³

207 As described above, Hazelwood’s communications response during the fire was shaped by its acceptance of the ‘One Source One Message’ principle and the acknowledgment that the CFA was felt to properly be the primary source of communication with the public.²⁷⁴ It appears that

²⁶⁹ Second Statement of Steven Harkins (Exhibit 29), [78], Harkins, T1563.18-1565.1.

²⁷⁰ Second Statement of Steven Harkins (Exhibit 29), [79], Harkins, T1565.7-T1566.20.

²⁷¹ Second Statement of Steven Harkins (Exhibit 29), [71], Mitchell, T1461.22-T1462.28; Harkins, T1562.2-23.

²⁷² Harkins, T1540.1-8.

²⁷³ Harkins, T1541.1-12.

²⁷⁴ Second Statement of Steven Harkins (Exhibit 29), [54]. Harkins, T1547.9-27.

as a result, the community formed the view that Hazelwood's absence from community meetings displayed a lack of empathy.²⁷⁵

208 The unexpected outcomes of not having a Hazelwood representative at the community meetings are:

- (a) the perception of the lack of empathy in circumstances where the Mine thought that the best thing it could do for the community was to extinguish the fire; and
- (b) the efforts of the many Hazelwood employees and contractors who worked tirelessly for 45 days to fight the fire have not been widely recognised.

209 Lessons learned by Hazelwood arising from the fire include:

- (a) review of pre-planning and identification of community leaders for an extended event like the Mine fire.²⁷⁶ As George Graham, Asset Manager, observed, the adherence to the One Source One Message principle resulted in: *"the wrong outcome because it portrayed that GDF Suez did not care about the community; that's absolutely as far away from the truth as you could actually get, because we understand that the community actually is very close to us ... we want a sustainable business at Hazelwood is because we know we're a big employer in the community, we know that the community thrives on Hazelwood being here, so the last thing we would want to do is adversely impact the community, but it didn't translate through that mechanism and that's a real shame"*.²⁷⁷
- (b) although the Mine annually undertakes emergency training involving the understanding that an external IC is the primary and sole source of communication, where possible, Hazelwood wishes to review the ability to engage in joint media releases and policies for long term emergencies,²⁷⁸
- (c) community meetings must be formal meetings that are chaired by an experienced person who can facilitate a fruitful meeting around understood topics such that it is well run, structured and each participant clearly understands their role.²⁷⁹ Given the failure of the IC to ensure that the meetings were well chaired and organised, it is

²⁷⁵ Harkins, T1547.10-1548.25.

²⁷⁶ Harkins, T1544.21-29.

²⁷⁷ Graham, T2252.5-T2253.18.

²⁷⁸ Harkins, T1545.5-15.

²⁷⁹ Harkins, T1548.16-25.

questionable whether it would have been constructive for Hazelwood to have an attended the two community meetings in any event;²⁸⁰

- (d) review of communication strategies for emergencies that are beyond a 3 day period and consideration of the broad and serious impact on local community²⁸¹. Mr Graham noted that he fully appreciated that the Mine's "*social licence to operate has been compromised through this process*".²⁸² He further noted that although he had been involved in some big incidents, they were within a short timeframe, saying "*[n]ormally it's around hours of heartache; hardly ever days. This is days, gone into weeks, which actually puts it in a dimension that most certainly we were not prepared for and, from what I've seen, other organisations weren't quite as prepared for it either. So this would be an attempt to say, it's obviously been proved this type of thing can happen; we would hope we wouldn't get anything like this happening again, but you know what they say, you should plan for the worst to some degree.*";²⁸³
- (e) Hazelwood did not adapt quickly enough to the longer term issues as they arose,²⁸⁴ and
- (f) future participation with EMJPIC and its regional equivalent, REMJPIC, during public emergencies through DSDBI as the key liaison. Although Ms Tabain indicated that the Mine could not be a member of EMJPIC as such, a co-ordinated approach of communication and engagement between Government and Industry would be beneficial and the opportunity would be looked on favourably by Hazelwood.²⁸⁵

²⁸⁰ Harkins, T1549.15-18.

²⁸¹ Harkins, T1550.10-13; T1550.28-1551.11; T1554.23-1555.15

²⁸² Graham, T2257.23-25.

²⁸³ Graham, T2252.30-T2253.28.

²⁸⁴ Harkins, T1550.14-18.

²⁸⁵ Harkins, T1552.24-1553.24; T1555.25-28; Tabain, T1422.15-23.

SECTION THREE: MITIGATION AND PREVENTION

Holistic approach to fire planning required

210 There have been two fundamental failures in relation to fire planning:

- (a) Land use planning has failed to take account of the impact of planning decisions upon fire risk management. No account was taken in the planning process of the significant risk created when plantations were permitted to be established close to an open cut Mine - despite the obvious risk of spotting during bushfire that this created.
- (b) Municipal Fire Management Planning and its successor, Integrated Fire Management Planning convened by local government is presently incapable of being implemented.

211 As Mr Lapsley noted, these two failures may be linked to the same cause, namely an artificial division between land use planning and emergency management in relation to fire:

“I think that for many years we've left this Emergency Management, this fire management thing over here, dealt with the broad land use planning, Board of Control [sic] and then added to it. It needs to be front and centre to understand what and what we're doing and, where we're allowing development, whatever the development is to occur, what is the impacts and therefore what's the consequence. That's why the Emergency Management legislation - we've currently got the first iteration of it that talks about consequence management - is a very important fundamental step of reform. It's significant reform”: **Lapsley T2321.7 – 18.**

Land use planning has failed to take account of fire risk

212 There has been a fundamental failure in appropriate land use planning in the Valley. This has given rise to increased risk of bushfires spotting into the Mine.

213 The map produced by Mr Pullman (Coordinator of Strategic Planning, La Trobe City Council, see **Pullman Statement Attachment JP2²⁸⁶**) depicts the Mine ringed by three plantations within 1km of its boundary. Mr Pullman confirmed the plantations are owned by Hancock and Gippsland Water: **Pullman Statement at [10]; Pullman T1715.4 - 25.** It appears very likely that all three plantations were established many years after the Mine commenced operations, although Mr Pullman was unable to be certain about the date of their establishment on the basis of his research: **Pullman T1630.1 – 13.**²⁸⁷

214 At present, there is a need for a plantation within 1km of a mine to have a planning permit. However, so far as Mr Pullman has been able to discover, it appears no such requirement

²⁸⁶ Statement of Jason Pullman (Exhibit 61).

²⁸⁷ Correspondence in Exhibit 82 certainly suggests the plantations were established between 1998 and 2001.

applied at the time these plantations were established: **Pullman T1720.4 – 16**. Searches back to 1969 reveal the three plantations do not have planning permits: **Pullman Statement at [12]; [23] – [24]**. While Mr Pullman was not sure why this is the case, it appears likely to be because no permit was required at the time the plantations were established by reason of the zoning and applicable overlays of the land proximate to the Mine: **Pullman Statement at [14] – [19]**.

215 Mr Incoll described the proximity of these plantations to the Mine as representing a significant failure of planning: **Incoll T2196.9 – 18**. Mr Incoll described the presence of plantations so close to mine as “incredible”: **Incoll T2156.23 – 28** and “well within spotting distance”: **Incoll T2157.1 – 8**. He described the proximity of the plantations as something which “beggars belief”: **Incoll T2156.24 – 28**.

216 One of the objectives expressed in the La Trobe Planning Scheme is to: “ensure that timber production takes into account the need for effective fire protection for the coal resource” (Clause 21 of the Planning Scheme at **Pullman Statement Attachment JP5**, objective 3 on page 3). The scheme recognises the value of an urban coal buffer zone (which requires that the total separation area between any urban settlement boundary and the crest of any future open cut mine should be no less than 1km) - yet there is no provision for a similar “buffer” between mines and plantations. Despite the reference in the Planning scheme’s objectives to ensuring that timber production takes account of the need for effective fire protection for the coal resource:

- (a) plantations have been permitted to be established within the bushfire “spotting” zone and well within 1km from the Mine;
- (b) there is no statement in the Planning Scheme of the means by which the activity of timber production can or ought “take into account” the need for effective fire protection of the open cut mines in the vicinity.

217 As can be seen from the above, the Council is powerless to control the plantation owners by traditional means such as imposition of conditions on the permits. Mr Pullman confirmed that the only mode by which the Council can impose any requirements on the operations of plantations is via Clause 52 of the Planning Scheme. Clause 52.18-2 thereof (see **Pullman Statement Attachment JP6**) provides that all timber production must comply with the Code of Practice for Timber Production 2007.²⁸⁸ The 2007 Timber Code of Practice is prepared by the Department of Sustainability and the Environment and is applied to timber production by reason of the fact it is incorporated by reference in Clause 52 of the Planning Scheme: **Pullman Statement at [21] – [22]**. By these means, agreed Mr Pullman, the Council is able to exercise “limited control” over timber production: **Pullman T1735.20 – 23**.

²⁸⁸ Exhibit 64.

- 218 But the 2007 Code is inapt to address fire risk. It is focussed on the manner in which timber production is carried on, with a focus on the goals of biodiversity and maintaining amenity for locals. It says nothing about controlling fire risk posed by plantations to open cut mines: **Pullman T1734.14 – 29; Pullman T1736.11 - 26**
- 219 Only the Planning Minister possesses the power to change the zones in the area in a manner which might prevent future plantations being established. Mr Pullman confirmed that even if the Minister took steps now to change the zones applicable near the Mine (say, for example, to prohibit plantations within several kilometres of the mine) the doctrine of existing use has the effect that there is no capacity to retrospectively require a permit for plantations. Further, it is very likely such a step would entitle the owners of the plantations to challenge any attempt to remove their right to operate: **Pullman T1737.19 – T1738.28; Pullman T1717.13 – T1718.25; Pullman T1727.8 - 1727.31; Pullman T1730.26 – T1731.6.**
- 220 There is a gap in the regulatory regime. There is no power to direct private owners of plantations to avoid or minimise the risk they pose to other infrastructure, including the Mine:
- (a) The obligation in s43 of the CFA Act to take all practicable steps to prevent the occurrence of fires and to minimise the danger of spread of fires is limited to councils and public authorities. Thus, it cannot attach to private owners of plantations.
 - (b) The only power in the nature of fire prevention which attaches to the plantation owners appears to be s41 of the CFA Act: namely, the power in the Council to issue Fire Prevention Notices. This power is apt to apply to the privately owned plantations – but has significant limitations, which are discussed in more detail below.
- 221 Mr King (Coordinator Emergency Management La Trobe City Council) confirmed that the Council's power under s41 of the CFA Act applies to plantation owners: **King Statement at [42]²⁸⁹**. Traditionally, such notices are focussed on directions to reduce fine fuels and directions to mow or slash grasses **King T1922.11 – 22; Lapsley T2318.20 – 2310.13**. Mr King agreed that the Council has power to serve Fire Prevention Notices on plantation owners and has in fact done so in the past: **King T1923.28 – T1924.5**. He confirmed the types of notices issued to plantation owners were the same as those given to “any farmer” or owner of private property, namely to reduce fine fuels in the form of a fire break within their property boundary: **King T1924.6 – 11.**
- 222 When asked how the Council uses its power under s41 of the CFA Act to deal with the existence of a mass of trees on a plantation and any risk this might pose in terms of fire risk to the mine, Mr King was unable to answer. He confirmed that while the Council had identified fire

²⁸⁹ Exhibit 72.

risks in relation to plantations and in relation to open cut mines, but “actually linking the two together, I don’t think we’ve actually done that to this stage”: **King T1924.21 – 27.**

- 223 In contrast, Mr Incoll suggested that Fire Prevention Notices under s41 of the CFA Act might be issued in a “bolder” form, directing plantation owners to strip dangerous bark from eucalypts: **Incoll T2197.13 – 23.** Whether this is within power or would be regarded as feasible is not clear. Even if it were possible to direct plantation owners to reduce the fire risk posed by their eucalypt plantations, it seems this would be an endless task (reissuing such notices every summer) requiring what is doubtless uneconomic “bark stripping” from thousands of trees.
- 224 In light of these practical constraints, Mr Incoll suggested that consideration be given to not permitting these plantations in proximity to the Mine to be re-planted once harvested: **Incoll T2173.27 – T2174.5; Incoll T2157.11 – 18.** While this is an attractive suggestion, the planning (and compensation) implications of such a move are an unknown quantity.
- 225 The existence of “external threats” posed to open cut Mines has long been recognised in the Codes of Practice used in the Valley’s mines. In clause 7 of the 1994 GV Fire Service Policy and Code, “External Protection” was expressed by reference to a “zone of responsibility” (see page 21). The notion of the “zone of responsibility” as at 1994 was informed by the reality that the SECV owned land outside the limits of the current mining licence. Clause 7.3 of the then Code referred to areas under the Mine Manager’s control, which included all those lands within the open cut – and in addition “those Generation Victoria lands” which were specified to be those within 1km to the northern, eastern and western sides of the mine and 0.5km of the southern side. By reason of the fact that Generation Victoria owned the land within the above described 1km buffer (slightly smaller on the southern side), it was provided that within those areas, treed and forested areas should primarily consist of scattered trees and grass and herbaceous understoreys (as further described in clause 7.3).
- 226 With respect to “non Generation Victoria” land, the following policy was stated: “Where unacceptable hazards have been created within the vicinity [sic] of the mine, the Mine Manager should ensure that the Statutory Fire Prevention Officer is informed so that appropriate action can be taken.” The above policy also finds expression in the Mine Fire Service Policy and Code: see clause 6.3 at page 31. Both Codes of Practice are silent on what “appropriate action” is in fact available to be taken in the event of a hazard being established in the vicinity of the Mine. What is clear, is that the “appropriate action” available to any mine operator is severely constrained by the reality that the Mine operator possesses no capacity to direct an owner of other private infrastructure to do anything. At best, the Mine operator can only encourage or request.
- 227 The evidence before the Inquiry powerfully demonstrates that past efforts by the Mine operator to request that plantations not be established nearby have been flatly rejected by plantation

owners: see **Exhibit 82** (correspondence between Hazelwood Power and plantation owners from 1998 through to 2001).

- 228 For example, the Director of Mining at Hazelwood in 1998 asked Gippsland Water to consider not proceeding with its plans to establish a plantation (a fact which Hazelwood's Director of Mining only learned of through the local press). This overture was rejected: **Exhibit 82 at pages 2 to 3**. Subsequently, the mine sought that the CFA intervene to assist, but in response were told that the CFA was "not in a position to determine land usage within the municipality": **Exhibit 82 page 4**. See also **Incoll T2199.11 – T2202.26**.
- 229 When the above events and the correspondence on the topic were drawn to his attention, Mr Incoll said "In this case, really the planning process has failed the mine": **Incoll T2202.21 – 22**.
- 230 In similar vein, Mr Pullman noted that: "For the situation we have now, often planning finds itself trying to retrofit historical events, trying to apply policy and retrofit things to give effect to conflicts as opposed to trying to plan ahead for them, it's much harder to do that. It would be fair to say a larger or the full 1 kilometre buffer would be appropriate but we do acknowledge the existing pattern of development doesn't allow for that": **Pullman T 1725.26 – T1726.4**.
- 231 The above demonstrates a significant failure. There appears to be little capacity to "retrofit" a suitable buffer zone to protect the mine from the risk posed by plantations operating in close proximity. The situation having been permitted to develop means that the plantation owners, the CFA, the Council and the Mine operator will have to commit to working all the more closely together during the process of integrated fire management planning in order to avoid crystallisation of the risk of spotting into the mine during bushfires.

Integrated Fire Management planning

- 232 Such "integrated" fire management planning as has taken place so far tends merely to identify infrastructure in the Valley which might at risk of being impacted by fire. However, the plans do not address themselves to the possible consequence of one item of infrastructure negatively impacting on one another. Some of the reasons for the failings of Integrated Fire Management Planning to date are discussed in more detail below.
- 233 Mr King gave evidence about the La Trobe City Council's Municipal Fire Prevention Plan (**King Statement Attachment LK2**). It emerged that municipal fire management planning and its successor, integrated fire management planning, have been substantially theoretical, with little implementation or practice. There have been three key failures in the planning processes:
- (a) Consultation: the consultation processes have not been comprehensive or completed by seeking provision of plans from asset operators in the valley;

- (b) The Council's plans have tended to identify risk without identifying how to avoid the risk or what to do if a particular risk crystallises; and
- (c) There is no power in the Council (or any other entity) to implement the municipal plans or plans which emerge from the integrated fire management planning process:

Lapsley T2318.5 – 13.

- 234 Initially, Mr King complained that the Mine had not supplied its fire management plan: **King Statement at [16]**. In evidence, he conceded that the Mine had not been approached to supply its plans: **King T1909.29 – T1910.24; King T1920.12 – 26**, despite his past liaison with Mr Vesty and Mr Roach from the Mine in relation to municipal fire planning: **King T1919.5 – 18.**
- 235 Mr King conceded the Plan does little more than identify a number of risks – including that there might be a fire involving either the plantations or an open cut mine. The plan does nothing, however, to inform the reader how to avoid either of those risks, or what to do when it happens: **King T1920.3 – 5.**
- 236 Despite the plan stating that the CFA and the Council would work through the fire management plans provided by the various asset owners in the valley (see clause 24 of the Plan at pages 35 – 36), Mr King conceded this had not been done because the document had become “superseded” by Integrated Fire Management planning: **King T1921.18 – 30**. Mr King agreed that no-one had worked through the “recommended treatment columns” to ascertain whether they were being applied, nor contacted any other agencies to suggest implementation of any particular treatments recommended in the plan: **King T1915.16 – 1917.25.**
- 237 Most significantly, King conceded there is no one responsible for implementing the municipal plans: **King T1914.22 – 26**. The Council has no authority to implement the plan: **King T1914.27 – 30; King T1918.1 – 4.**
- 238 Mr Incoll said these plans ought not be “just plans gathering dust on a shelf”: **Incoll T2175.21 – 25; Incoll T2154.2 – 16**. Mr Lapsley agreed there is a lack of power to implement the plans. He agreed there is a need for legislative underpinning to integrated fire management planning to enable it to be enforced, and suggested that the model of an implementation monitor might assist: **Lapsley T2325.19 – 30; T2326. 17 – 19**. In addition, a regime of accountability is required: **Lapsley T2327.19 – 21.**
- 239 Mr Graham has proposed that the Latrobe City Council re-engage with Hazelwood as part of the Municipal Fire Prevention Planning and future Integrated Fire Management Planning.²⁹⁰ As part of this, he has suggested the process will be enhanced if the Council, the CFA and operators of all other critical infrastructure in the Valley work together.

²⁹⁰ Exhibit 94.

SECTION FOUR : PREVIOUS FIRES AND PIPE REMOVAL

Previous fires at the Mine

240 Post privatisation, the Mine has experienced the following significant fires:

- (a) a fire which occurred on 30 December 2005, caused by a pre-existing geological hot spot or fire hole in the South East Field, extending down onto Operational Level D24. This fire was the subject of a report entitled *IPRH Mine Coal Fire December 2005 Final Report*, supplied under the Summons²⁹¹;
- (b) a fire which occurred on 12-18 October 2006, caused by a seized idler on a face conveyor ("**October 2006 fire**"). A copy of a GHD report in relation to this fire report was provided as **Annexure 2** to Robert Dugan's witness statement (Exhibit 13);
- (c) a fire which occurred on 14-22 September 2008, caused by a pre-existing geological hot spot or fire hole in the southern batters of the Mine ("**September 2008 fire**"). A copy of a GHD report in relation to this fire was provided as **Annexure 6** to Robert Dugan's witness statement (Exhibit 13);
- (d) a fire which occurred on 21 January 2012, caused by an idler bearing in the central chute of Dredger 11 seizing, igniting the conveyor belt and setting fire to other parts of the dredger ("**January 2012 fire**"). A copy of the internal report produced in relation to this fire was provided as **Annexure 7** to Robert Dugan's witness statement (Exhibit 13).

241 As noted above, the December 2005, October 2006, September 2008 and January 2012 fires were the subject of internal or consultant reports, which included various recommendations.

242 As evidenced by the various Witness Statements and Reports provided to the Inquiry²⁹², the vast majority of the various recommendations made in these internal and/or consultant reports have been actioned or implemented by the Mine. This has led to improved procedures as regards fire preparedness and response, for example:²⁹³

- (a) training exercises with the local CFA;

²⁹¹ Document 01.02 provided under Summons on 9 May 2014.

²⁹² Statement of Romeo Prezioso (Exhibit 93); Annexures 3, 4, 5, 6 and 8 to the Statement of Robert Dugan (Exhibit 13),

²⁹³ Statement of Robert Dugan (Exhibit 13), [25] – [26]

- (b) refined techniques for fighting coal fires (e.g. the use of a 30,000L water tanker as the “first responder” to any fire emergency);
- (c) the implementation of procedures under which Mine personnel escort the CFA throughout the Mine; and
- (d) the updating of the following fire policy documents:
 - (i) Mine Fire Service Code of Practice;
 - (ii) Emergency Response Plan; and
 - (iii) Mine Fire Instructions;
- (e) the preparation of the following additional fire policy documents:
 - (i) Guidelines for Season and Period Specific Fire Preparedness and Mitigation Planning;
 - (ii) Guidelines for Season Specific Fire Preparedness and Mitigation Planning;
 - (iii) Check List For Fire Fighting Equipment Annual Audit and Inspection; and
 - (iv) Check List For Season Specific Fire Preparedness and Mitigation Planning.

243 Implementation of the recommendations arising from the 2006 GHD Report, including updates to the *Mine Fire Service Policy and Code*, was overseen by the then Department of Primary Industries.²⁹⁴

244 Otherwise, the various fire reports have been internal reports prepared for the benefit of GDFSAE and its predecessor entities. There is no regulatory or statutory requirement to implement all of the recommendations within such reports. There have also been no separate recommendations or directions from any regulator, body or agency arising out of any of the fires referred to above.

245 A particular issue of interest to the Inquiry has been the actions taken in response to Recommendation 6 of the GHD 2008 Report.

246 Recommendation 6 of the GHD 2008 Report was in the following terms:

A risk assessment should be undertaken on the non-operational areas to determine if further prevention work is required. The risk assessment should include a Cost/Benefit Analysis.

²⁹⁴ Statement of Kylie White (Exhibit 59), [167] – [172], Submission from the Victorian Government dated May 2014, paragraphs [5.44] – [5.49].

A range of options have been identified in terms of prevention of hot spots from reigniting and detection of hot spots.

247 Romeo Prezioso, who was the Fire Service Officer at the relevant time, gave evidence that he had understood the recommendation to be focussed on the detection of hot spots in the worked out batters of the Mine, and on improving access to the worked out batters.²⁹⁵

248 Mr Prezioso also gave evidence of having spoken to Mr Casey, the Incident Investigation Leader responsible for the 2008 GHD Report, in relation to recommendation 6 of that report. Mr Prezioso's evidence was that Mr Casey had indicated that he "*would not have necessarily expected that the Mine would obtain, or produce, a formal risk assessment report in response to this recommendation.*"

249 Mr Prezioso detailed a range of actions undertaken at the Mine in response to recommendation 6 of the GHD 2008 Fire Report, including:²⁹⁶

- from about February 2009 to April 2013, the production of a Monthly Hotspot Inspection Report with respect to the known hotspots, as identified by Mr Prezioso;
- from about December 2012, inclusion of the results of regular Fire Hot Spot Status reports as part of the *Fire Management Systems - Weekly Status "Rag Reports"*;
- the removal of disused mining infrastructure, such as a conveyor and ARMCO vehicle crossing from the southern batters of the Mine, and the realignment of a road, in order to improve access;
- the enhancement of the annual fire-fighting equipment audit to more comprehensively address the non-operational areas of the Mine. The annual audit now assesses access conditions and the condition of the fire services infrastructure at the worked out areas of the Mine;
- the digging out and recapping of known hot spots with clay; and
- the use of thermal imaging cameras, and consideration of the use of buried thermocouples.

250 In addition, there was evidence before the inquiry of a report produced by GHD in December 2009, entitled draft *Report for Major Mining Hazards Assessment*, which identified Mine Fires as such a risk including spontaneous combustion of reactive coal (p.12), as relevant risks to be

²⁹⁵ Statement of Romeo Prezioso (Exhibit 93), [93], [95].

²⁹⁶ Statement of Romeo Prezioso (Exhibit 93), [98] – [115].

managed (Appendix A). This report identified visual hot spot monitoring as a control system for spontaneous combustion [P.32/51].²⁹⁷

251 It is notable that whilst no formal risk assessment report was produced in relation to Recommendation 6, no evidence has been adduced to the Inquiry (including by the experts retained by the Board) as to what the result of any such risk assessment may have been, and whether it would have resulted in steps being taken by the Mine which went beyond the steps described by Mr Prezioso. This is particularly the case given that Recommendation 6 made it plain that any risk assessment should include a cost/benefit analysis. As the evidence of Leonard Neist makes plain, the cost of possible steps might significantly outweigh the benefit, which in the context of the 2008 report, was fire from the flare up of a pre-existing hot-spot.²⁹⁸

Fire service pipes and wetting down

252 The evidence in the Inquiry concerning the fire services pipe network and use of wetting down was initially beset by erroneous assumptions. There was a lack of clarity concerning:

- (a) the requirements under the successive Codes of 1981 *SECV Latrobe Valley Open Cut Mines Fire Protection Policy*, the SECV's 1984 *Latrobe Valley Open Cut Mines Fire Protection Policy Revision 1*, the GV Fire Service Policy and Code (1994), and the current *Mine Fire Service Policy and Code* in relation to the pipe network, and wetting down in relation to worked out batters;
- (b) the policy pursuant to which the SECV adhered prior to privatisation and what, in a practical sense, the SECV was ever able to do in terms of "wetting down" parts of the Mine during its time of operations;
- (c) the requirements of the Work Plans in relation to compliance with the Codes as in force from time to time;
- (d) the reason for which and circumstances in which pipes were in past removed from part of the Northern batters.

253 The evidence of Mr Polmear addressed the above confusion. Mr Polmear was uniquely placed to provide insight into each of the above. He has been a Mine employee for over 30 years. Mr Polmear's period of employment at the Mine has included periods as Fire Service Officer (for the SECV and GV), and as Mine Director. He gave evidence in relation to the removal of pipes within the Northern batters of the Mine, both prior to and following privatisation. His evidence is addressed in more detail below.

²⁹⁷ Statement of Romeo Prezioso (Exhibit 93), [98] – [115]. Annexure 10.

²⁹⁸ Statement of Leonard Neist (Exhibit 70), [29]-[30].

The “good old days”

- 254 Mr Incoll opines in his report that the Mine’s current policy should be revised to ensure that “spray coverage is available for all exposed coal surfaces in the Mine” when weather conditions are conducive to the spread of fire (unless the exposed surface is covered with earth, a suggestion dealt with elsewhere in these submissions): see **Incoll Report at paragraph 280**. In support of this proposition, Mr Incoll asserted that “anything less than 100% spray coverage availability during hot dry windy conditions (or full earth coverage of the Northern batters²⁹⁹) is inviting a reoccurrence”: see **Incoll Report at paragraph 218**.
- 255 It transpired that this opinion of Mr Incoll’s was based on a misapprehension concerning the SECV’s policy and practice. This is referred to below.
- 256 At times during the Inquiry’s hearing, GDFSAE was criticised for any perceived departure from “the good old days”. In other words, it appeared often that strict adherence to the practices and policies of the SECV and GV prior to privatisation was being called for. GDFSAE was criticised for any perceived departure from the terms of the 1994 GV Fire Service Policy and Code.
- 257 On the other hand, towards the latter part of the Inquiry’s evidence it appeared to also being suggested that GDFSAE was at fault for adhering to the requirements of the 1994 Code. For example, during Mr Graham’s evidence it was suggested that the 1994 Code was “prepared many years ago in a very different world” at a time when the three mines were owned by public authorities. It was suggested to Mr Graham that this demonstrated it was time to conduct a “fundamental review of that document.”³⁰⁰ While Mr Graham did not demur from that suggestion as part of his commitment to continuous improvement, it is ironic indeed that GDFSAE can be criticised on the one hand for failing to have developed a document “suitable for the second decade of the 21st Century,” while at the same time being criticised for any alleged departure from the standards which applied in 1994 prior to privatisation.
- 258 Similarly, it emerged that erroneous assumptions were being made about what the SECV and GV did or would have done in the “good old days”. The 1994 Code was carefully prefaced by the caveat that 100% coverage was not possible. It stated that: “In order to properly protect all parts of the open cut, pipe work and sprays are to be installed as laid down by this policy and Code of Practice. However, it must be understood that a larger water system would be required to run all the sprays and protection systems simultaneously. This policy provides for a diversity in the simultaneous application of the fire protection water supplies and distribution. The maximum demand as defined in this Code of Practice is an allowance of water usage upon which the design of the water supply system is based. The maximum demand rate of water use is considered to be sufficient to meet any likely contingency within the open cut. The distribution of this allowance of water usage is reasonably flexible for any situation, but the use

²⁹⁹ See **Incoll T2207.28 – 31**.

of more water than allowed for in one area may cause a reduction in the performance of the system”.³⁰¹

259 In light of the abovementioned physical constraints in the water supply system, the 1994 GV Fire Service Policy and Code (which relevantly replicated the SECV 1984 Fire Service Policy) made provision for “Option A” or “Option B” as set out in clause 8.1.2 (page 23). Option A consisted of an allowance to operate sprays providing 50% cover of exposed coal. Option B consisted of an allowance to operate sprays providing 25% cover of exposed coal. Under each of those options, variations were stated with respect to the working levels of the Mine, spray coverage of machines and conveyors and certain requirements in relation to hydrants. In other words, the policy applied by the SECV and GV did not ever call for 100% spray coverage, even with respect to the operating parts of the Mine. Nor indeed was the system capable of providing such coverage – as is recognised in the passage set out above.

260 It emerged in evidence that Mr Incoll had assumed that the SECV and GV had previously been capable of delivering 100% spray coverage. He had suggested in his submission to the Inquiry that the standard response of the SECV was to “start up large scale irrigation systems that covered exposed coal faces with a water spray”. In cross examination he agreed that it had only been his “impression” that the SECV’s practice was to provide 100% coverage.³⁰²

261 In light of the above, the suggestion that Hazelwood ought to have been required to meet a standard which was not contained in the 1994 Code, and which the SECV and GV never purported to meet “back in good old days” is unfair. Nevertheless, as is set out in detail below, Mr Graham has undertaken to address issues in relation to the pipe services network in light of the lessons learned during this fire.

The evolution of the 1984 and 1994 Codes

262 Mr Polmear said that the removal of fire service pipes within the Mine was not contrary to the GV Fire Service Policy and Code (1994), which had changed the requirements in the predecessor policy, the SECV “*Latrobe Valley Open Cuts Fire Protection Policy*” revision 1 dated November 1984 (“**SECV 1984 Fire Protection Policy**”), with respect to fire protection on “worked out batters” such as the Northern batters of the Mine.³⁰³ The relevant provisions of the 1984 (SECV) and 1994 (GV) policies as regards worked out batters are outlined below:

³⁰⁰ **Graham T2285.27 – T2286.12**

³⁰¹ See 1994 Code at page 8-9; see **Incoll T2204.9 - 20**

³⁰² **Incoll T2206.29 – T2207.14**

³⁰³ Statement of Richard Polmear (Exhibit 90) at [26]-[27].

SECV “ <i>Latrobe Valley Open Cuts Fire Protection Policy</i> ” revision 1 dated November 194	GV “ <i>Latrobe Valley Open Cut Mines Fire Service Policy and Code of Practice</i> ” revised 1994
<p>1. Exposed Coal</p> <p>....</p> <p>1.1.4. Worked Out Batters (refer to fig 1.2)</p> <p>As a minimum requirement worked out batters are to be protected as follows:</p> <ul style="list-style-type: none"> • All benches are to be clay covered; • All berms are to be eliminated by trimming or by filling with clay such as to shed fretted coal provided that batter stability calculations indicate that neither of these options will cause batter failure; • Fire break zones extending down to full depth of each batter may be utilised such that the length of exposed coal in any one batter is not greater than 500 m. These zones can be in the form of metalled vehicle access ramps, a minimum of 8 m wide or in the form of a 20 m width clay covering. • Alternatively, fixed spray breaks may be used, but it should be noted that water for these sprays has not been included under the maximum demand conditions, and this protection should not be considered as reliable as clay fire breaks or vehicle access ramps. • Figure 2 shows an example of this 	<p>4. Exposed Coal</p> <p>....</p> <p>4.4. Worked Out Batters</p> <p>As a minimum requirement worked out batters are to be protected as follows:</p> <ul style="list-style-type: none"> • All benches are to be clay covered; • All berms are to be eliminated by trimming or by filling with clay such as to shed fretted coal provided that batter stability calculations indicate that neither of these options will cause batter failure; • Tanker filling points are to be provided such that a tanker on any part of the worked out batters is within 5 minutes travel of a tanker filling point. Fixed sprays should be used in conjunction with the droppers for the tanker filling points in order to provide wetted breaks. <p>Alternatively:</p> <ul style="list-style-type: none"> • Where practicable, fire break zones extending down to full depth of each batter may be utilised such that the length of exposed coal in any one batter is not greater than 500 m. These zones can be in the form of metalled vehicle access ramps or clay

SECV “ <i>Latrobe Valley Open Cuts Fire Protection Policy</i> ” revision 1 dated November 194	GV “ <i>Latrobe Valley Open Cut Mines Fire Service Policy and Code of Practice</i> ” revised 1994
protection.	covering a minimum of 8 m wide. <ul style="list-style-type: none"> • Appendix A4 shows examples of this protection.

263 As can be seen from the above, the GV 1994 Fire Service Policy, which was signed by the Mine Managers of each of the three Latrobe Valley open cut brown coalmines (Loy Yang, Yallourn and the Mine), introduced alternatives to the previous conditions in relation to use of fixed spray. Those alternatives made provision for minimum requirements for Tanker Filling Points to be provided in worked out batters such that:

- a tanker on any part of the worked out batters is within 5 minutes travel of a Tanker Filling Point;
- fixed sprays were to be used in conjunction with droppers for the Tanker Filling Points in order to provide wetted breaks; and
- fire break zones were provided for as an alternative.

264 The three alternatives referred to above operate in combination and are intended to permit some flexibility of approach in light of the practical constraints in the mine over time. The 1994 Code states (at page 9) that: “This policy provides for a diversity in the simultaneous application of the fire protection water supplies and distribution”.³⁰⁴

Background to the change as between the 1984 and 1994 Codes

265 Mr Polmear explained that in 1992, while employed by the SECV, in light of the problems with the ageing pipework in the northern batters of the East Field of the Mine (discussed in more detail below), a Risk Assessment was obtained from Richard Oliver International Pty Ltd, for the purpose of seeking an exemption from the requirements of clauses 1.1.4 and 1.1.5 of the SECV 1984 Fire Protection Policy in relation to the worked out areas and batters of the Mine, including the north eastern and eastern batters.³⁰⁵

³⁰⁴ See also **Incoll T2205.1 - 19**

³⁰⁵ Statement of Richard Polmear (Exhibit 90), at [23].

- 266 The Risk Assessment Report produced by Richard Oliver International Pty Ltd is Annexure 3 to the Polmear Statement. This Risk Assessment Report recommended that an exemption to the 1984 Fire Protection Policy was not appropriate or justifiable, but that the Policy could be revised by adopting certain measures in worked out areas, including the provision of Tanker Filling Points.³⁰⁶
- 267 Following production of the Risk Assessment Report, GV, a statutory authority, took over SECV's electricity production assets, and undertook a review of the 1984 Fire Protection Policy. The 1984 SECV Fire Protection Policy was subsequently revised by GV, to provide for Tanker Filling Points, as outlined above.³⁰⁷
- 268 In terms of the manner in which the alternatives for which provision was made under the revised policy from 1994 were implemented on site, Mr Polmear explained that fire breaks were not practicable in all parts of the Mine at Hazelwood, in light of the depth of the Mine and steepness of the batters, as follows:

"the overall slope is 3:1... [installing fire breaks] would mean it would be one continuous slope from top to bottom, which means you've lost all access, you've lost any possible corridors for easements and the like. So the only way that you can cure that... is the toe is the toe; you actually have to go back further at the top to flatten it so that you've got access on benches. If you do that, then you actually have problems with the services that run at the top of those, so at that critical point just round the corner from where we've done rehab, it steepens up from about 6:1 to 3:1 overall slope. If you apply this rule at 500 metre intervals and you put the dirt in, then you end up with paddocks, but paddocks which are now inaccessible from top to bottom. So, if a fire does get in there, you can't get in to fight it."³⁰⁸

- 269 He further noted that there were Tanker Filling Points throughout the worked out batters of the Mine, in accordance with the GV 1994 Fire Service Policy, which together with the Mine's fire trucks, provided fire protection in the areas in which pipes had been removed.³⁰⁹

Removal of pipes from northern batters

- 270 A plan of the fire service pipes within the northern batters of the Mine, as at 9 February 2014, including tanker filling points is **Annexure 11 Dugan Statement** (Exhibit 13).
- 271 Plans of the fire service pipes installed during the fire, and of the total network of pipes following the fire are at **Exhibit 34** (see also the map supplied by George Graham Exhibit 94, depicting pipework planned for future installation).

³⁰⁶ Statement of Richard Polmear (Exhibit 90), at [24].

³⁰⁷ Statement of Richard Polmear (Exhibit 90), at [26].

272 Mr Polmear said fire service pipes had only been removed in the northern batters of the Mine (prior to 2007, as none had been removed since then), for the following reasons:

- the pipes having become unserviceable (corroded and unable to hold pressure);
- the development of the internal overburden dump (1998 - 2003);
- the construction of the Hazelwood Ash Retention Embankment (“**HARE**”) (which followed the creation of the internal overburden dump); and
- by reason of batter rehabilitation works.³¹⁰

Did changes made to the fire services pipe network require a variation to the 1996 Work Plan?

273 Mr Incoll asserted that modifications to the fire services pipe network were undertaken without approval of a variation to the 1996 Work Plan: see **Incoll report at paragraph 276**. GDFSAE rejects the assertion that such a variation was required.

274 Under each of the 1996 and 2009 Work Plans, as regards fire protection, the Mine was required to adhere to the GV 1994 Fire Service Policy. While the 1996 Work Plan contained reference in its text (see page 63 of Attachment 3 to the Statement of Kylie White (Exhibit 59) to an attachment which was a map of the fire service pipes within the Mine in 1995 (see Figure 3 of the Work Plan annexed to the Mining Licence), the attachment of this map to the Plan did not constitute a fixed requirement without which the commitment to the overall policy was breached.

275 It is submitted that Mr Incoll’s expertise does not run to the expression of a legal opinion as to whether an amendment to the Work Plan was required before the pipe network could be physically altered. In the end, the said merely that he “thought it [the pipe network schematic diagram] would have been part of the plan”: **Incoll T2211.16 – 17**. Further, in his opinion “if the current paperwork doesn’t cover it, then a new lot ought to be generated that does, that’s basically what I am saying”: **Incoll T2212.12 – 16**.

276 But the Work Plan was expressed only in terms which required that the Code be adhered to, and ought not be read as “locking in” the mine to fire services pipe networks in a configuration as set in stone in 1996. As the Code admits of a number of alternatives and fire service pipes would necessarily need to be removed and added as the Mining operation progressed, such an approach would not be logical or reasonable. In short, it is submitted that it is not a condition of the Work Plan requiring a variation approval process that the Mine’s fire services pipe network remain untouched post 1996.

³⁰⁸ Polmear, T2034.29-T2035.14.

³⁰⁹ Polmear, T2061.1-2.

277 In evidence Ms White merely noted (in response to a question from Counsel Assisting) that “if it [a pipe schematic diagram] was included in a Work Plan”, then it “would be the case” that a variation to the Work Plan was required.³¹¹ But, DSDBI did not ever bring such a shortcoming to GDFSAAE’s attention. This is not a matter Ms White had addressed in her witness statement. Further, there is no evidence that DSDBI during its discussions with Hazelwood in relation to the subsequent Work Plan of 2009 or during any other inspections of audits has ever expressed the view that a change to the network ought to have inspired an application for a variation. Indeed, Ms White confirmed that so long as the standards set out in the 1994 GV Fire Service Policy and Code continued to be met, this constitutes compliance with the provisions of the Work Plan.³¹²

Conclusion

278 It is submitted that it ought be found that:

- (a) Hazelwood is presently in compliance with the 2009 Work Plan and the GV 1994 Fire Service Policy as regards fire protection on the northern batters of the Mine.
- (b) It has not been established as a matter of law that a formal variation to the 1996 Work Plan was required prior to changes being made to the fire service pipe network. Rather, so long as the overall requirements of the GV 1994 Fire Service Policy (which is expressed as permitting a number of alternatives) were met there was no departure from the requirements of the Work Plan. As a result, it could not be found that a formal variation was required. In particular, it would be illogical to suggest that a variation application was required to permit removal of pipework in circumstances where this may be necessary in order to undertake planned rehabilitation works.

279 There is a separate question, however, as to whether the introduction of increased fire services pipe network would be valuable and whether wetting down of non operational areas on days of extreme fire danger might serve to mitigate fire risk. As to questions concerning the likelihood of this risk and the ‘reasonably practicable measures’ which might be introduced to reduce that risk, the sections of these submissions which deal with risk assessments under the OHS regime.

280 GDFSAAE submits that the suggestions made by Mr Graham (discussed below) obviate the need to resolve the different views expressed by the VWA witnesses and Professor Cliff concerning the appropriate approach to risk assessment in this regard.

³¹⁰ Statement of Richard Polmear (Exhibit 90), at [27]-[30]; Polmear, T2055.18-T2057.9.

³¹¹ White, T1587.23 – 28.

³¹² White, T1680.16-20.

Plans for the future

281 Mr Graham has committed to installing new pipework in the North Batters: See Exhibit 94 and the map attached thereto.³¹³ He has also undertaken to implement a review (to be undertaken by external consultants working with Hazelwood personnel) of the current pipework and condition in the areas of the Mine other than the eastern section of the northern batters.³¹⁴ The outcome of the review will be made known to DSDBI/VWA. Further, on Extreme Fire Danger Days Hazelwood will instigate wetting down of non-operational areas.³¹⁵

³¹³ Mr Graham explained where the additional pipes would go by reference to the map which was tendered as part of **Exhibit 94**; see also at **Graham T2248.16 – T2249.23**.

³¹⁴ **Graham T2249.24 – T2250.11**.

³¹⁵ Mr Graham said in evidence that “listening to evidence” he formed the view he needed to “move the focus away through the events we’ve had from a very high focus on the operational areas to a more global focus on the risk to the whole mine”: **Graham T2250.12 – 24**.

SECTION FIVE: REHABILITATION

Rehabilitation concepts

282 There is a difference between the following concepts discussed during the course of the Inquiry:

- (a) progressive rehabilitation, to be undertaken during the life of an applicable Work Plan;
- (b) final (or end of Mine life) rehabilitation; and
- (c) work which might provide benefits in terms of reducing or mitigating risk of fire, described by some witnesses as “temporary rehabilitation”, for example, works undertaken on exposed coal batters such as the application of a clay/cement coating. As James Faithful noted in evidence, the term “temporary rehabilitation” was unknown to him.³¹⁶ It is suggested that to avoid confusion the term ought be avoided as it has no usage in the mining industry.

283 As was noted by a number of witnesses, there is a distinct difference between rehabilitation works and fire risk mitigation works. While the former may, on occasion, include work which also produces mitigatory effects in terms of risk of fire, the two concepts are distinct.³¹⁷

284 Progressive rehabilitation is the works to be carried out by Hazelwood during the life of the mining operation, pursuant to condition 15 of the Mining Licence.

285 Since 1996/1997, Hazelwood has progressively rehabilitated approximately 431.3 hectares of land within the Mining Licence boundary³¹⁸ at a cost of in excess of \$14 million³¹⁹.

286 The areas rehabilitated since privatisation include a large section of the northern batters, closest to the township of Morwell, as shown in the plan at Annexure 4 to the Witness Statement of James Faithful. Prior to the outbreak of fire in February 2014, the Mine had planned to rehabilitate a further 9 hectares of land across the northern and eastern batters of the Mine during 2014, as shown in Annexure 5 to the Witness Statement of James Faithful.

287 Batter rehabilitation works are difficult, time consuming, costly, and require considerable planning. Prior to privatisation, the rehabilitation undertaken by the SECV were largely ‘easy wins’ for example the eastern overburden dump. No rehabilitation works had been undertaken within the open cut itself.³²⁰

³¹⁶ Faithful, T2015.2-5.

³¹⁷ White, T1647.10-18.

³¹⁸ Statement of James Faithful (Exhibit 88) [49]. See also the plan at Annexure 4.

³¹⁹ Graham, T2264.09 – 11.

³²⁰ Statement of James Faithful (Exhibit 88) [50].

- 288 Final rehabilitation is the works to be carried out by Hazelwood at the conclusion of the mining operations, pursuant to condition 16 of the Mining Licence.
- 289 The final rehabilitation concept for the Mine is for the open cut to be partially flooded, to form a lake. This goal is set out in the 2009 Work Plan at page 6-2 paragraph 6.4.
- 290 As the lower coal levels within the Mine will be submerged by the future lake, it is only exposed coal levels above the water level that will be reached after 6 years (RL – 22) that require rehabilitation by way of the reshaping the batters, the placement of overburden and revegetation.
- 291 DSDBI has confirmed that the Mine is in compliance with its obligations under the approved rehabilitation plan for the Mine.³²¹

Rehabilitation steps

- 292 A outlined in the evidence of James Faithful, the steps involved in relation to rehabilitation of Mine batters are as follows:³²²
- (a) First, stability assessments are required. This step is crucial and would likely take at least 6 to 12 months for an area of the Mine such as the Northern Batters, which is in close proximity to the Morwell township and infrastructure. Stability assessments take the current known stability of the batters and then model the stability level after the proposed rehabilitation is completed. A range of variables including batter profiles, groundwater levels, seismic events, and weather events are simulated to determine how the rehabilitated batters would perform under varying load conditions. Once that assessment is undertaken, controls are then simulated to ensure that the resulting batter safety factors are not compromised. Such controls include horizontal bores, open drains and vertical pumping bores.
 - (b) Secondly, planning is then undertaken for the rehabilitation works. Based on the desired batter profile (or 'steepness'), the extent to which the existing batters need to be laid back has to be determined;
 - (c) Thirdly, the mining infrastructure situated in the vicinity of the batters that will need to be removed is identified and, depending on what the infrastructure is, and what stage of the mining sequence has been reached, infrastructure which is required for the ongoing operation of the Mine needs to be rebuilt in a different location;
 - (d) Once the necessary relocated infrastructure is rebuilt, the coal and overburden can be removed, and the batters are laid back to the desired profile. This work is completed

³²¹ Statement of Kylie White (Exhibit 59) [111].

³²² Statement of James Faithful (Exhibit 88) [34].

using a method we call “truck and shovel”. Excavators (shovels) are used to progressively remove the coal and the overburden from each of the levels and this material is carted away in trucks. This process, depending on the time of year, is the most complex process. In the Latrobe Valley, the “earthworks” season is generally from Melbourne Cup Day to Anzac Day each year. The weather outside of this period is generally wetter and unsuitable for major earthworks of this nature. Even during the earthworks season it is possible that such works would be delayed or halted altogether due to inclement weather conditions;

- (e) Once the necessary coal is removed, overburden is then used to cover the newly profiled coal batters. The layer of overburden is typically about 1 metre deep. In order to do this, additional suitable overburden material has to be located. The material within the Mine is not of a consistent composition and overburden from some areas is more suitable for use in batter rehabilitation works than other parts of the Mine. For example, the overburden currently being produced from mining operations in Block 1C (which comprises the bed of the old Morwell river) is too high in its moisture and silt content, and on this basis, is unsuitable for placement on batters as it may lead to batter stability issues. The overburden presently being produced from mining operations is unsuitable for batter rehabilitation works, and on this basis, is being placed on the floor of the Mine. If extensive batter rehabilitation works were required to be undertaken in the short term, given the nature of the overburden that is currently available from the mining operations, suitable overburden would need to be specifically sourced from other areas within the Mining Licence Area (i.e. would not be available as a by-product of the mining operations themselves) or, depending on availability, externally sourced;
- (f) After the batters are laid back and resloped, and covered in suitable overburden, topsoil is spread on the batters and the area can be revegetated, and any necessary geotechnical equipment (e.g. horizontal bores, standpipes, inclinometers, extensometers) is installed; and
- (g) Batter rehabilitation requires extensive planning, and involves significant resources including plant, equipment, labour and engagement of external consultants.

293 A large component of the cost of batter rehabilitation works is the time at which the work is completed, relative to the sequence of the mining operation itself. For example, the availability of sufficient quantities of suitable overburden from the mining operation, and the distances over which materials need to be hauled³²³ are major aspects of the overall cost. Any requirement to “bring forward” extensive batter rehabilitation may considerably add to the cost of the works.³²⁴

³²³ Faithful, T1998.08 – 13.

³²⁴ Faithful, T1993.25 – 1994.10

294 As regards availability of suitable overburden, the 2009 Work Plan acknowledges that the overburden material available from the current mining operation in Block 1C is not suitable for placement on batters. On this basis, the material is being placed on the floor of the Mine. Suitable overburden material will only become available once overburden mining operations move into Block 2A, currently scheduled for 2016 – 2017 and Block 2B, scheduled for 2018.

295 Whilst the 2013 Work Plan Application currently before DSDBI makes certain adjustments to the proposed sequence of the mining operation, and relatedly, of certain progressive rehabilitation works, Kylie White (Executive Director, DSDBI) acknowledged in her evidence to the Inquiry that “*it is not uncommon for mine sequencing to be varied over time as the mine operator determines what's the best way to win the coal.*”³²⁵

296 Whilst the evidence of James Faithful³²⁶ and Kylie White³²⁷ exposed a difference in interpretation as between the Mine and DSDBI as regards the next “checkpoint” for progressive rehabilitation (namely: whether certain rehabilitation works needed to be commenced, or completed, by 2019):

- James Faithful in his evidence emphasised the Mine’s close working relationship with DSDBI inspectors, and indicated that he expected this issue could be discussed and resolved;
- Kylie White noted that there were avenues through which any misunderstanding could be addressed³²⁸; and
- George Graham, in his evidence, suggested that the issue should be resolved as follows:

Noting that there appears to be ambiguity in the current Work Plans about whether the dates specified are for rehabilitation to be commenced or completed by that date, as part of the ongoing discussions with DSDBI re the 2013 WPV, Hazelwood will discuss the appropriate timing of each sequence of rehabilitation works.

³²⁵ White, T1593.6 – 11.

³²⁶ White, T1616.01 – 09.

³²⁷ White, T1615.01 – 21.

³²⁸ White, T1622.08 – 12.

“Early” rehabilitation of the Northern batters

297 As outlined by James Faithful in his evidence to the Inquiry, in planning any rehabilitation works on the northern batters, the following factors and constraints need to be taken into account:³²⁹

- **availability of sufficient quantities of suitable overburden** – the composition of the overburden (dirt and clay overlying the coal, utilised in rehabilitation works) varies throughout the Mine. As noted above, overburden is not always suitable for placement on batters, and the overburden currently being mined from Block 1C in the West Field is not suitable for placement on the batters of the Mine given its composition (saturation levels), and on this basis is being placed on the floor of the Mine. Further, only a certain volume of overburden is available from the mining operations conducted annually within the Mine;
- **construction constraints:** typically, given the ground conditions at the Mine, earthworks projects such as rehabilitating batters can only be carried out between November and April due to difficulties with the wet weather outside of this period;
- **infrastructure positioned on the northern batters:** important infrastructure is situated on the northern batters which would need to be removed in order for the rehabilitation works to be completed. Such infrastructure includes:
 - **Mine power lines** – including power lines which run up the northern batters and supply power to important mine infrastructure situated on the floor of the Mine beneath the northern batters such as pump stations servicing the Mine’s operations, including the fire services network;
 - **fire services mains pipes** - including additional pipework installed in response to the recent fire within the Mine;
 - **pumps e.g.** ground water control pump (see below);
 - **ponds and groyne** (see below);
 - **roads, ramps and benches** – most of which are required as part of the Mine’s operations (for example, for access to various parts of the Mine for operation and maintenance requirements). Alternative access arrangements would need to be arranged, prior to such infrastructure being removed;
 - **horizontal bores** – which help control water levels within the batter, in order to ensure stability; and

³²⁹ Statement of James Faithful (Exhibit 88), [60].

- **vertical bores** - which provide for the monitoring and management of aquifer levels beneath the Mine;
 - **other geotechnical equipment positioned on the batters** – in order to monitor conditions and manage batter stability – e.g. piezometers, extensometers, inclinometers and survey prisms; and
 - **roadside/underground drains** - which drain water way from the batter, in order to ensure stability.
- **infrastructure positioned above the batters** - in order to reduce the grade of the batter and allow for future land use, an area of land at the top of the batter would need to be removed. Mine infrastructure such as roads and power lines are likely to be affected by such works. Further, the impacts on infrastructure such as :
 - SP AusNet's high voltage power lines which service other Gippsland towns such as Leongatha, Yallourn and Morwell as well as the Hazelwood Mine and Power Station;
 - the Princes Freeway; and
 - the Morwell Main Drain,
 would need to be assessed and managed (including with third parties); and
 - **future mining direction** - as shown by Figure 4.1 in the 2009 Work Plan, mining will eventually proceed further to the north at the western end of the Mine. The batters at the western end of the northern batters are temporary batters, which will be directly mined through. Any overburden placed over the top of these batters as part of rehabilitation works would need to be later removed;

298 In his evidence, James Faithful described the importance of undertaking detailed stability assessments whilst planning rehabilitation works.

299 In her evidence, Kylie White also acknowledged the careful planning that would be involved in any revised rehabilitation and/or fire mitigation plans for the northern batters of the Mine, as follows:³³⁰

I believe we would need to have technical experts that would be able to provide us with advice around mine stability and issues relating to ensuring that the northern batter in particular remains stable during any other rehabilitation program that we may come up

³³⁰ White, T1643.11 – 1644.06.

with. We'd need to have fire expertise... I think first up it would be about bringing the most relevant people together with the expertise that would enable robust consideration of what a rehabilitation plan would look like if we were to consider or further consider fire risk during the life of the mine and mitigation... of course, the feasibility or the cost of doing such works would ultimately have to be considered as well."

- 300 Kylie White also acknowledged that the Mine infrastructure on, above and beneath the northern batters, which would need to be considered in any planned rehabilitation works³³¹, as follows:

The mine has a range of infrastructure that needs to be in place for a number of years regardless of whether - or even when the batters or the mining has been completed and it's no longer an operational part of the mine. I think things such as the ponds that exist at the bottom of the area that has been worked out, the bores that have been constructed for ground water control pump, the horizontal bores that exist in the northern batter for stability are all ongoing requirements at the moment of the mine. It may not be the working face, they may not be coaling, but all that infrastructure is required.

- 301 In relation to the question of whether this Mine infrastructure could be moved, Kylie White commented as follows.³³²

[T]he infrastructure that is within and adjacent to that northern batter is still an essential part of the working of the mine. I see your point about whether it could be moved, however could I say that that's a very complex operation, to consider whether for example the ponds and the groundwater bores could be moved and still undertake the task that's required of them to keep the mine stable. So, I'm not trying to say that they couldn't be moved; I think, given that the job that they're required to do is being done at the moment, and there is no requirement to move them yet because there are other areas that could be rehabilitated, I would accept that the infrastructure is in the right place.

- 302 Kylie White also acknowledged the complexity of batter stability issues, and noted that the Technical Review Board appointed by the Minister has noted that geotechnical issues potentially impacting upon batter stability should be better managed at all mines in the Latrobe Valley.³³³

- 303 Community witness Robert Gaulton questioned the feasibility and desirability of bringing forward rehabilitation of the northern batters, in commenting as follows:

³³¹ White, T1623.05 – 12.

³³² White, T1660.13 – 27.

³³³ White, T 1625.27 – 1626.01.

I'm not sure that that would be a priority even at this stage. Rehabilitation is being used across the board to suggest that the batter should be covered with clay and then topsoiled and then replanted with vegetation. I personally am not sure that that would be such a good idea to have the mine full of resown vegetation. I certainly agree that at the end of mining an attempt to bring the environment back to as natural as possible is justifiable and desirable, but while the mine is operating I don't see that as very practicable.

304 Professor Incoll made it clear that he did not consider that accelerated Mine rehabilitation was the solution to the fire risk of exposed coal, and that he was instead “*talking about either wetting the coal or covering it.*”³³⁴

305 Despite the identified constraints to rehabilitation, James Faithful suggested that within the central region of the northern batters, it may be possible to identify smaller areas in relation to which rehabilitation works could be undertaken as a matter of priority within the shorter term (i.e. the next 2-3 years), for example areas without infrastructure (either on the batter, or above the batter) that would be impacted by the works. Of those areas, he indicated that particular priorities could be:

- the areas closest to the town of Morwell (other than areas that have already been rehabilitated or are planned to be rehabilitated); or
- areas assessed as having higher fire risks - either due to environmental factors, or by virtue of the coverage of applicable fire services infrastructure.

“Temporary rehabilitation”

306 Witnesses have proposed various models of so-called “temporary rehabilitation” aimed at reducing risk of fire. These proposals took various forms. What is notable about each of these proposal, is that none had been subjected to any form of risk assessment, planning or costing by their proponents. Further, no evidence was adduced that any of these proposals has ever been trialled in any open cut mine anywhere in the world.

307 For example, one such suggestion was to be found at paragraph 281 of Mr Incoll’s expert report, where he suggested that “[a]reas of exposed coal not irrigated by water sprays should covered to a safe depth with an earth cover pending ultimate rehabilitation.”

308 Mr Gaulton, by way of further example, suggested that a mixture of earth and cement be applied to the batters.³³⁵

³³⁴ Incoll, T2210 – 19.

³³⁵ Statement of Rob Gaulton (Exhibit 60), [46]; and Gaulton, T1704.30-T1705.27-T1706.11-T1707.12.

309 In response to the suggestion that one might put some *overburden on some batters now before they're laid back*", Kylie White expressed caution, as follows:³³⁶

"I think there is a couple of matters there, one is around the steep slope, but in part it's also about whether it could exacerbate the stability of those batters without reforming them, particularly if we're talking about the northern batters which have already got a known stability question over them and are being monitored on a daily basis; the concern would be whether that approach would deal with the other risks that the mine has."

310 Relatedly, in her Witness Statement, Kylie White suggested that the following technical and practical issues would need to be considered prior to implementing any reform to mitigate fire risks on Hazelwood's exposed coal batters.³³⁷

a. whether exposed coal batters ought to be covered, or wetted with sprays on high risk days, or a combination of both methods;

b. the type, quantity, availability and suitability of materials that would be required to cover exposed coal batters;

c. the practicability and availability of water for reticulated water systems at worked out faces of Hazelwood mine;

d. the impact of such work on the safe and productive operations of Hazelwood mine;

e. impacts on mine stability, particularly of the northern batters adjacent to Princes Freeway;

f. the compatibility of such work with the end of mine vision for Hazelwood mine;

g. the cost of such work; and

h. ramifications for other mines in Victoria.

311 Ms White agreed that the above criteria would a "*good starting point*", to check proposals such as Mr Incoll's against.³³⁸

312 In cross examination, Mr Incoll acknowledged that risk and engineering assessments would need to be undertaken prior to proceeding with such works.³³⁹ Mr Gaulton agreed his suggestion had not been the subject of any studies or trialled in any open cut mines anywhere in the world.³⁴⁰

³³⁶ White, T1684.3 – 11.

³³⁷ Statement of Kylie White (Exhibit 59), [189].

³³⁸ White, T1684.18 – 20.

³³⁹ Incoll, T2208.31 – 2209.20.

³⁴⁰ Gaulton, T1707.1-5.

- 313 Professor Cliff also proposed a solution involving earth cover, but in evidence agreed that any such a plan required the conduct of a risk assessment first.³⁴¹
- 314 James Faithful, in his evidence, identified a number of practical issues with respect to the placement of fill on the northern batters without reshaping works having first been undertaken. These issues included likely impacts on benches (roads), drains, and bund walls, and reduced access to the northern batters:³⁴² Mr Faithful also emphasised that the impact of such works on horizontal bores in the northern batters would need to be carefully managed, so that dewatering was not disrupted, giving rise to stability issues.³⁴³

Batter coverings

- 315 Professor Cliff in his draft expert report produced for the purpose of the Inquiry suggested that “*other materials such as clay or fly ash slurries may be effective on steeper slopes in at least providing some coating and reducing the effective surface areas.*”
- 316 Similarly, Community Witness, Robert Gaulton suggested in his Witness Statement that an ash/cement mixture could be laid on the batter as a means of fire protection.
- 317 In his evidence, James Faithful queried the practicality of this solution from a maintenance perspective, given the steepness of the batters, and raised concerns regarding the impact of such a coating on the Mine’s ability to conduct routine geotechnical inspections of joints and movements within the batters, so as to maintain batter stability. In particular, Mr Faithful noted that it was an important element of batter stability management that the batters be visible and readily accessible. These inspection and maintenance means would be impeded by a superficial coating.³⁴⁴
- 318 In cross examination, Professor Cliff acknowledged that he had not considered the effect of such an application on drainage within the batter³⁴⁵, and was not aware of this technique having been applied in an open cut brown coal mine.³⁴⁶
- 319 In cross examination, Mr Gaulton also acknowledged that he had: “*no particular expertise in that area and I have no idea what would be a suitable material to coat the batter systems with*”, had not given consideration to management of hot spots beneath the coating, and was not aware of this technique having been used as a fire protection measure in any coal mine, whether brown or black, in the past.

³⁴¹ Report of David Cliff (Exhibit 91), pp 6-7; Cliff T2124.24-T2126.19.

³⁴² Faithful, T2018.12 – 24.

³⁴³ Faithful, T2017.14 – 23.

³⁴⁴ Faithful, T1977.23 – 1978.1, T2015.21 – 2016.13, T2022.18.

³⁴⁵ Cliff, T2125.10 – 15.

³⁴⁶ Cliff, T2125.8 – 9.

Appropriate means of fire protection

320 In his evidence to the Inquiry on Friday 13 June 2014, provided in reference to a chart and map supplied to the Board (Exhibit 94), George Graham committed to undertaking the following actions with respect to fire service pipes, and rehabilitation works, in the northern batters:

- *Hazelwood will maintain and continue to use the additional pipe system located in the northern batters which was installed during the 2014 fires.*
- *Hazelwood will install additional pipework and hydrants in the areas marked on the northern batters shown in the broken aqua coloured line in the attached plan (the “eastern section of the northern batters”).*
- *This will have the effect that the area shown is covered by:*
 - *Rehabilitation that has occurred prior to 2014;*
 - *Rehabilitation proposed to be undertaken during 2014;*
 - *Undisturbed land (i.e. grassed areas that don’t contain exposed coal);*
 - *Sprinklers which are currently installed on the northern batters; or*
 - *Additional sprinklers to be installed on the northern batters.*
- *Conduct a review (to be undertaken by external consultants working with Hazelwood personnel) of the current pipework and condition in the areas of the Mine other than the eastern section of the northern batters. The outcome of the review would be made known to DSDBI/VWA.*
- *Hazelwood will undertake the rehabilitation set out in Annexure 5 to the Faithful statement.*

321 In Hazelwood’s submission, these measures, coupled with proposed enhancements to electrical supply systems detailed in the chart supplied by Mr Graham, are practical steps which can be taken by the Mine (and SP AusNet) in the short term in order to effectively reduce the risk of a significant fire in the northern batters of the Mine.

322 As regards the fire risk reduction measures suggested by Professor Cliff, Roderic Incoll and Robert Gaulton discussed above, in Hazelwood’s submission, further consideration must be given as to their feasibility (from a technical and practical perspective), and a detailed risk assessment should be undertaken prior to any of these measures being implemented at the Mine. In Hazelwood’s submission, the feasibility study and risk assessment should be undertaken by the Mine, DSDBI, VWA and suitably qualified consultants with open cut mining, fire and risk management expertise. In the Mine’s submission, the criteria outlined in paragraph 189 of the Witness Statement of Kylie White would serve as a helpful starting point for the issues that would need to be considered in such a study.

Rehabilitation bond

Purpose of the bond and methodology of calculation

- 323 To the extent that the consideration of methodologies applicable to the fixing of a bond under section 79A of the Mineral Resources (Sustainable Development) Act (**MRSD Act**) is relevant to this Inquiry's Terms of Reference, it is submitted that any consideration of the purpose of rehabilitation bonds ought commence with an understanding of the legislative regime pursuant to which the bond is imposed and liable to be recovered.
- 324 Section 78 of the MRSD Act imposes an obligation on holders of mining licences to rehabilitate land in accordance with conditions in the licence and in accordance with any rehabilitation plan entered into with the Department. Section 79 sets out certain things which a rehabilitation plan must take into account, including any special characteristics of the land, the surrounding environment and the need to stabilise the land.
- 325 Section 79A enables the Minister to require a licence holder to undertake a "rehabilitation liability assessment" for the purpose of determining the amount of a rehabilitation bond (or for reviewing the amount of such a bond). The section provides little explicit guidance as to what ought be taken into account in making such an assessment, but it does state that an assessment must be undertaken "in a manner and form determined by the Minister" and must take into account "works required to be undertaken to rehabilitate the land in accordance with the requirements of section 78 or 78A".
- 326 The provisions of the MRSD Act in relation to bonds do not operate in isolation. Section 81 provides that a licence holder must rehabilitate land in the course of doing work pursuant to that licence and must "as far as practicable", complete the rehabilitation of the land before the authority to work (or any renewed authority) ceases to apply to that land. It can be seen then, that the bond does not constitute the sole means of assurance that planned rehabilitation works will be done. Such a requirement is readily to be found in the licence conditions and by reason of the application of s81.
- 327 Further, s83 provides that the Minister may request a licence holder to rehabilitate land. If the licence holder fails to do so (within a reasonable period after the request), the Minister may take any necessary action to rehabilitate land if the Minister is not satisfied that the land has been rehabilitated as required by section 78 or 78A, or takes the view that further rehabilitation of the land is necessary. If that occurs, the Minister may recover as a debt any amount by which the cost of undertaking that rehabilitation work exceeds the amount of the bond.³⁴⁷
- 328 The way in which the regime works as a whole makes it clear that the bond is designed only to serve as a "back up", required to be drawn on only where a licence holder has failed to meet their obligations under the licence and the MRSD Act, and has failed to respond to a request from the Minister to perform works, and has left un-rehabilitated parts of the mine necessary to

be done, the cost of which is in excess of the value of the bond and where those costs are not able to recovered under s83.

329 It is only if all the above events occur that a bond would ever need to be drawn on. Thus, there can be no suggestion that a failure to lock away a bond in a particular amount will have the effect that the Minister is left with no other means of ensuring rehabilitation works are done, or for recovering the costs of any additional works required.

330 As Ms White stated, “the rehabilitation bond that’s held is different to the rehabilitation that GDF Suez are required to do as part of their mining licence and part of the work plan, and so regardless, if you like but regardless of the bond they are still required to rehabilitate according to the work plan and the rehabilitation plan, which may amount to more or less millions to do that work”.³⁴⁸ Later in evidence, Ms White confirmed that the bond “is expected to quantify the risks that would need to be rehabilitated if it was not done so by the operator”.³⁴⁹

331 In similar vein, Mr Graham said he sees the bond as akin to a retainer: the Mine has is required to perform a service (namely rehabilitation), if it does not perform that service, then it is not unusual for the entity which requested that serve to retain the right to require forfeiture of the bond: **Graham T2265.1 – 11; T2268.5 – 19.**

The bond fixed in relation to the Hazelwood licence

332 Ms White confirmed that the licensee paid a rehabilitation bond of \$15 million in May 1996. That amount was re-affirmed in 2001.³⁵⁰

333 There was no one able to give evidence before the Inquiry in relation to the precise methodology applied to devise the bond in 1996. GDFSAE had no input into the fixing of the sum.³⁵¹ There was, however, documentary evidence dating back to pre privatisation located from the archives by Ms White. That documentation (such as it was able to be understood in the absence of any evidence from its authors) appeared to suggest that prior to the sale of the business, staff at Generation Victoria had (at the Department’s request) provided some analyses of projected annual and final end of life of mine costs of rehabilitation works: see attachments KAW 47, KAW 48 and KAW 49 to the Supplementary statement of White³⁵². It appeared from those documents, that the Department accepted the Generation Victoria estimate supplied to it in 1995 that the total current liability for rehabilitation was thought to be “in the vicinity of \$20 million” – this being the combined cost of progressive and end of life of mine rehabilitation. However, in its final analysis the Department determined that the bond

³⁴⁷ White, T1632.7 – 24.

³⁴⁸ White, T1613.1 – 13; see also White T1632.1 – 6.

³⁴⁹ White, T1686.10 – 12.

³⁵⁰ Statement at 112 – 113 and Attachments KAW 24 and KAW 25. White T1630.24 - 31

³⁵¹ Statement of James Faithful (Exhibit 88), [15]-[16].

³⁵² See also White T1685.9 – 26.

ought to be fixed by reference solely to the estimated cost of rehabilitation which would remain (following the performance of progressive rehabilitation) at the end of the life of the Mine.

334 It is also of note that in a memorandum addressed to the Acting Executive Director, Resources Development it was stated that:

(a) The importance of the mine as part of the State's power supply infrastructure meant it was "very unlikely" to close before the scheduled end of life;

(b) It could therefore be argued that "provided progressive rehabilitation is kept up, the potential liability to the State is only the cost at closure".

335 In other words, the view was taken prior to privatisation that it could be safely assumed that progressive rehabilitation would proceed as agreed, and that the State's only exposure was to be regarded as that which would attach at end of life of mine.³⁵³ As a result, the bond was fixed only by reference to the "end of life of mine" costs and not by adding to that figure the ongoing progressive costs of rehabilitation.

336 It can be seen then that the methodology for setting a bond may alter depending on the view taken by the Department of the best way of ensuring the overall goals of the MRSD Act are achieved, in light of the prevailing rehabilitation plan and the licence holder's "record" in terms of compliance.

337 In circumstances such as presently exist, where the Department is satisfied that Hazelwood is in compliance with its work plan³⁵⁴ and where there exists no reason for it to think the company will be unable to meet the cost of any rehabilitation works which might remain to be undertaken at the end of life of mine, there is simply no basis for assuming or concluding that the amount presently fixed for the bond is not adequate. As Ms White confirmed, the bond should "reflect the risk profile and be proportionate to the risk".³⁵⁵

Setting the bond in the future

338 Ms White said that DSDBI is currently undertaking a project to devise a methodology to assess the rehabilitation liability for all mines in Victoria. The project commenced in 2010, but has since stalled³⁵⁶. Despite the fact that it has now been revived, Hazelwood has not yet been approached to participate in that project.

³⁵³ White T1630.11 – 23.

³⁵⁴ White T1677.16 – T1678.1; T1692.10 – 14.

³⁵⁵ White T1633.1 – 3.

³⁵⁶ Statement of Kylie White (Exhibit 59), [116]-[117]; White T1612.1 - 8

339 If any part of this review of methodology is to focus on the costs of rehabilitation, it is submitted that there is ample evidence before the Inquiry which establishes that:

- (a) There is no objective or static measure of the cost per hectare of rehabilitation. By way of example, thus far, \$14M has been spent: **Graham T2264.8 – 11**. But by way of further example, the works planned to be done before December 2014 have been budgeted to be undertaken at a total cost of \$995,000 or roughly \$110,500 a hectare: **Graham T2262.11 – T2263.25**.
- (b) One cannot extrapolate out from past costs to future rehabilitation costs. The costs of any particular rehabilitation works varies greatly depending on the variables or inputs. As noted by Mr Graham, one is not comparing apples with apples: **Graham T2264.1 – 11**.
- (c) The variables which impact on estimates of future rehabilitation costs include where (in the sequence of mine works) the rehabilitation 'fits', the availability, suitability and cost of overburden for use in the process and whether the work in question requires the relocation of mine or community owned infrastructure.

340 In addition, it will be necessary to realistically appraise the "risk profile". The past record of Hazelwood in meeting its obligations under the Work Plans ought be taken into account in assessing whether there is any need to set a bond to guard against the risk of those obligations not continuing to be met. It is submitted that such risk is not present. For example, upon it being suggested to him that GDFSAE might close the mine without completing its rehabilitation obligations, Mr Graham said: "[T]hat won't happen. ... we through National Power, International Power, we're actually the only organisation that's in here for the long haul; we not going anywhere..... I believe GDF Suez would not allow that to happen and we would fully meet the commitments that are required of the organisation": **Graham T2266.1 – 29**. Ms White agreed she has no reason to think that the current obligations of GDF Suez will not be met: **White T1686.13 – 20**.

SECTION SIX: OH&S

Compliance with the requirements of the OHS regime

The OHS regulations applicable to mines and the VWA approach

- 341 Mr Hayes (VWA Inspector) and Mr Niest (Executive Director, Health and Safety) of VWA confirmed that the OHS regime's primary focus is on eliminating or reducing those mining hazards which have the potential to cause the greatest degree of harm (death or serious injury), namely *major mining hazards* as defined in regulation 1.1.5: **Niest Statement [28]; Hayes T1753.8 - 18.**
- 342 Mr Niest explained that while a fire in the worked out northern batters constitutes a "mining hazard" within the meaning of regulations, a fire in the worked out batters is not considered to be a "major mining hazard" and does not fall within the scope of hazards required to be subjected to a Safety Assessment under Regulation 5.3.23: **Neist T1821.17 – T1822.4.** Such a risk is, however, obviously subject to the usual rubric of the requirement to do what is reasonably practicable to address the risk: **Neist: T1823.28 – T1824.3; T1826.8 – 30; Neist T1830.10 – T1832.19.**
- 343 Sections 21 and 23 of the OHS Act require operators to take into account the likelihood of a particular risk or hazard occurring, the degree of harm that would result if the risk eventuated, and the reasonably practicable control measures available to reduce or eliminate the risk: **Neist Statement [22] – [28].** In this context, Mr Niest confirmed that when assessing risk and considering the likelihood of any particular risk, it is legitimate to look at ready comparators, such as other open cut mines in the Valley, and to consider the fact that over the last 90 years there have been very few bushfires which have gone into the three open cut mines, when compared with the very many fires which have ignited within those mines: **Neist T1876.9 – 30.** Further, Mr Niest confirmed that when a risk identified as rare crystallises, it does not invalidate one's previous assessment that the likelihood of the risk occurring is rare: **Neist T1877.1 – 3.**
- 344 Mr Niest's evidence confirmed that the assessment of what is "reasonably practicable" to reduce or eliminate a risk is to be undertaken in light of a common sense appreciation of the undertaking in question. As Mr Niest said by way of example, the best way of eliminating or reducing the risk of fire in a non operational part of a mine might be to rehabilitate the land. However, given the cost or feasibility of rehabilitation compared with the likelihood of fire and degree of harm that might result from it, rehabilitation is unlikely to be considered a "reasonably practicable" control measure for dealing with this particular hazard in the context of occupational health and safety: **Neist Statement [29].** Similarly, he said that:

"[T]he cost of installing and maintaining, across the entire non –operational part of a large open cut coal mine such as Hazelwood, a mine fire services system that would be effective

*in controlling a coal fire, is likely to be disproportionate compared to the degree of harm that could result from such a fire. Accordingly, such a risk control measure whilst valid and effective, would not be considered reasonably practicable to enforce, even if it might be considered desirable or reasonable in order to prevent or control lesser consequences: **Neist Statement [30]. [emphasis added]***

Compliance with Regulation 5.3.23: VWA verification inspection

- 345 VWA conducts annual verification inspections of all prescribed mines, including the Hazelwood open cut mine: **Hayes T1753.23 – T1754.30**. Those inspections traverse a range of topics. The verification inspection in 2012 focussed on mine fires: see **Hayes T1755.18 – T1756.5**.
- 346 During a verification inspection in mid 2012, Inspector Hayes served an Improvement Notice on Hazelwood (**Hayes Statement Attachment 19**) in relation to the Safety Assessment required by Regulation 5.3.23. Inspector Hayes' notice identified some deficiencies in the Bow Tie diagram he was shown in light of the fact that a report prepared in December 2009³⁵⁷ by GHD had referred to the intention to undertake further work in relation to risk assessments. In Inspector Hayes' view, the failure to complete this work gave rise to a reasonable belief that Regulation 5.3.23 had not been complied with at that time: **Hayes T1770.5 - 20**.
- 347 In evidence, Inspector Hayes agreed he had a familiarity with the 2009 GHD report,³⁵⁸ having attended some of the workshop sessions the consultants had facilitated: **Hayes T1787.21 – T1790.23**. It is clear from the 2009 document (and Inspector Hayes accepted) that the workshops conducted by GHD had appropriately traversed the process of identifying risk, analysing risks, identifying treatment options and selecting options: **Hayes T1790.11 – 23**
- 348 On 8 October 2012, Inspector Hayes re-attended the Mine (see **Hayes Statement Attachment 20**) and served a Compliance Notice which confirmed that the Improvement Notice had been complied with. In that context, Inspector Hayes noted that the Bow Tie diagram he had observed on the previous occasion had been updated following risk assessments conducted in early October (as documented in minutes provided to him). Mr Hayes confirmed that a perusal of this documentation, along with a large bundle of "control" sheets accompanying the updated bow tie diagram in combination satisfied him that the Improvement Notice had been complied with: **Hayes T1772.20 – 31; T1774.22 – 27; T1775.25 – 27; T1776.1 – 23; T1796.18 – T1797.23**.
- 349 It was suggested by Counsel Assisting and the Board to Mr Hayes that he had not specifically considered some of the other criteria in Regulation 5.3.23 not specifically referenced in his Improvement Notice and applied them to the documentation produced by Hazelwood: **Hayes T1776.24 – T1777.29**. He agreed he had not reviewed all available documentation against all

³⁵⁷ Exhibit 68.

³⁵⁸ Exhibit 68.

the applicable criteria in his work so far: **Hayes T1786.25 – T1787.13**. Mr Hayes explained that in order to form a view about whether every element of the regulation's criteria were met, he would need to "go back in a talk to our senior mining engineers": **Hayes T1784.19 – 23**. Mr Neist expressed a similar view: **Neist T1878.1 – 6**.

350 Mr Hayes confirmed that in his work with the mine and across all his visits (approximately monthly) he had not identified any other failure to comply with Regulation 5.3.23: **Hayes T1795.11 – 17**. While his focus was on checking compliance with the Improvement Notice he had served, he agreed that had he detected any other non compliance he would have issued another Improvement Notice: **Hayes T1797.24 – T1798.7**.

351 Mr Neist said that the documents prepared by Hazelwood of which he was aware demonstrated that there had been an engagement in a risk assessment in relation to fire in the non-operational parts of the mine. He confirmed the fact that in looking at the mine's safety management system, his view was that "fire in mine, no matter where it is the mine" is a mining hazard and that the mine's safety management system covered that risk: **Neist T1837.6 – T1838.11**. In endorsing the appropriateness of this approach by Hazelwood, Mr Neist was even more explicit:

"GDF Suez, the duty holder, has presented that [referring to the documents in evidence]³⁵⁹ as their risk assessment of the operation of the mine and VWA has not challenged that risk assessment in any way. If we considered that that was wrong, we would have issued an Improvement Notice or a Prohibition Notice or some other discussion with the duty holder if we thought it was critically wrong": **Neist T1822.18 – 28**.

352 Mr Neist went on to confirm that it is "not just GDF Suez" taking the approach of distinguishing between mining hazards and major mining hazards, but rather in the operation of mines across Victoria, there has not in the past been a suggestion "that there is a significant risk of loss of one or more lives to do with fires in the non working parts of the mine. So it's not just GDF Suez, the duty holder, that's the experience of the Earth Resources industry": **Neist T1823.5 – 16**.

353 He said that the risk of fire in worked out batters is not sufficiently high that "you would expect someone to deploy resources, expend finances on correcting a thing when they have so many other risks that present a far bigger risk. It's about getting the right balance of where the resources are deployed to achieve the best outcome for safety in a workplace": **Neist T1823.17 – 27**.

³⁵⁹ Mr Neist later confirmed in this answer he was referring to the mine's safety management system and its assessment of the presentation of risks: **T1823.2 – 16**.

- 354 It is clear from the above that VWA does not believe that Hazelwood has failed to comply with the obligations imposed on it by reason of it being a prescribed mine under the OHS Regime, nor that there is any evidence of a contravention of regulations 5.3.21 or 5.3.23.
- 355 In light of the evidence, the Board could not conclude that Hazelwood has failed to comply with regulations 5.3.21 and 5.3.23.
- 356 As is clear from the above, VWA has not ever regarded Hazelwood as being in breach of its requirements with respect to risk assessment in relation to risk of fire in worked out batters. Indeed, the only Improvement Notice with respect to formal Safety Assessments (a requirement only applicable to major mining hazards) which has ever been served has been found to have been complied with.
- 357 In contrast, Professor Cliff initially opined that the documentation provided by Hazelwood “does not demonstrate compliance with” regulation 5.3.23 of the Occupational Health and Safety Regulations 2007 (Vic): **Cliff Report page 8.**³⁶⁰
- 358 Hazelwood rejects this suggestion and submits that at the close of evidence, no foundation for such a finding remained.
- 359 Significantly, Professor Cliff retracted this aspect of the opinions expressed in his report when it became clear that the view he expressed in his report was impaired by some key misapprehensions. At the time of writing his report, Professor Cliff had:
- (a) Erroneously assumed that the requirement to prepare a Safety Assessment applied to all mining hazards, and not only major mining hazards as defined: **Cliff T2119.20 – T2120.5.**
 - (b) Only been supplied with one of many of the documents which together constitute the Safety Assessments undertaken by Hazelwood since 2003 and which comprise its current Safety Management System Manual. He had not been supplied with all the materials available to Inspector Hayes as at October 2012 – much less the full suite of documents maintained by Hazelwood: **Cliff T2090.3 – 21; T2119.9 – 19; T2121.9 – 16.** See generally **Exhibits 66, 68, Exhibit 89.**
- 360 As has been made clear by the evidence, a substantial body of work has been done by the Mine in relation to Safety Assessments and preparation of a Safety Management System.:
- (a) In 2003 to 2004, a Major Mining Hazards Safety Assessment was prepared with the assistance of Qest Consulting. It comprised four documents: Executive Summary, Hazard Identification, Semi-Quantitative Risk Assessment, and Critical Control Adequacy

³⁶⁰ Exhibit 91

Assessment & Reduced Case Risk Assessment: see **Exhibit 89, documents 14.01, 14.02, 14.03 and 14.04 within the response to summons.**

- (b) In October to December 2009, GHD reviewed the 2003 / 2004 work, including facilitating workshops and preparing a report titled Interim Report Major Mining Hazards Assessment dated 22 December 2009: **Exhibit 68, document 12.01 within the response to summons.** During this process, GHD conducted a review of the 2004 Major Mining Hazards study (see page 4). It is of note that inspector Hayes of the VWA and another VWA inspector (Sleziak) attended one of the workshops as part of the GHD 2009 Safety Assessments (see **document 12.01 at page 6**).
- (c) In June 2012, VWA Inspector Hayes had issued the Improvement Notice referred to above (**Hayes Statement Attachment 18**) which required the conduct of a comprehensive Safety Assessment in order to assess the risks associated with the Major Mining Hazards – Mine Fires.
- (d) In October 2012, Mine staff conducted the Hazelwood Mine 3 Year Review of Major Mining Hazards MMH#7 Mine Fire during workshops on 4 October 2012 and 5 October 2012: see **Exhibit 67** (minutes added to Hayes Statement), **document 12.02 in the response to summons.**
- (e) On 8 October 2012, Inspector Hayes served a Compliance Notice having reviewed the updated materials including the revised Bow Tie and control sheets and the minutes of these workshops (see **Hayes Statement Attachment 20 and see Exhibit 66, tab 10 comprising Bow Tie Assessment and Control sheets**).
- (f) The Mine has a Safety Management Manual (most recent print dated November 2013 – part of **Exhibit 89**). The Manual is hyperlinked to a number of underlying policies.

361 Professor Cliff was not appraised of the above until shortly before or while giving evidence. He had, at the time of his report, only been supplied with the documents at **Exhibit 66 Tab 10.**

362 On the evening before he gave evidence, Professor Cliff was supplied with the 2003 / 2004 documentation (**Exhibit 89, documents 14.01, 14.02, 14.03 and 14.04**). When questioned by Counsel Assisting, he confirmed explicitly that such documentation “would indicate a safety assessment process” as at 2003: **Cliff T2121.17 – 23**. During evidence, he was also taken by counsel for GDFSAE to the GHD report of December 2009 (**Exhibit 68**). On this document being brought to his attention, Professor Cliff confirmed that “in principle” it also demonstrated use of an appropriate method of undertaking a Safety Assessment: **Cliff T2122.5 – 23**. Further, on being informed for the first time that within the mine’s Safety Management Manual there is a document which directs those reviewing Major Mining Hazards to document consideration of all

controls considered and of the question whether they are to be “removed” or whether it is determined to adopt new controls, Professor Cliff acknowledged this “met his satisfaction” in terms of the criteria he had identified as important under Regulation 5.3.23: **Cliff T2133.11 – 22.**

363 Thus, on reconsidering his opinion, in light of a correct appreciation of the Victorian regulatory landscape and having been supplied with additional documentation, Professor Cliff conceded that:

- (a) the materials now supplied to him “provided a basis” for a safety assessment process for major mining hazards and
- (b) the failure of those documents to specifically address the risk of a fire in the worked out batters was referable to the definition of a major mining hazard not encompassing such a risk: **Cliff T2091.1 – 16; T2121.17 – 23.**

364 Professor Cliff agreed that in light of the new documentation supplied and the new appreciation he had gained of the differences in the Victorian regulatory approach, he accepted it was fair to say that “the safety assessment process meets the criteria”: **Cliff T2123.23 – 31.** When pressed, he confirmed that he now accepts that the criticism in his report (see page 8) that Hazelwood had not complied with a particular regulation “is not the case”: **Cliff T2124.23.**

365 Relevantly, Professor Cliff’s opinion is now rather to the effect that he would like to see the requirements applicable to major mining hazards expanded under the Victorian regime in a similar manner to that which applies in New South Wales and Queensland: **Cliff T2124.5 – 17.**

366 If the above suggested regulatory amendments are made to the Victorian scheme to expand the circumstances in which Safety Assessments are required to be conducted, Hazelwood will engage with DSDBI and VWA in order to understand how those changes will impact on the manner in which it conducts its safety assessments and prepares its Safety Management System Manual. Indeed, Mr Graham has attested that Hazelwood would gratefully receive any guidance material the VWA produces in the area and would in any event sit down with the VWA to review its compliance with the same: See Exhibit 94.

367 Further, in so far as it is now suggested that there has been a failure to comply with regulations 5.3.7 or 5.3.9, it is of note that Mr Niest’s evidence was to opposite effect. Mr Niest said that he was satisfied that the risk of fire in a worked out batter had been the subject of a risk assessment: **see Niest T1837.1.** He was pressed on this conclusion by counsel assisting, and confirmed on a number of occasions that in his opinion the bow tie assessment and related documents he had regard to, including the Mine’s Safety Management System, demonstrated that a risk assessment had been undertaken in relation to the risk of bushfire entering the Mine.

In his opinion, this constitutes a risk assessment in relation a mining hazard in the form of a mine fire.

Improvements

- 368 Mr Neist said that in light of the evidence in the Inquiry concerning the uncertainty expressed by Inspector Hayes concerning some aspects of Regulation 5.3.23 and his own recent consideration of that part of the OHS regime, he intends to “bolster” the earth resources group with some “systems safety specialists” and that ultimately he would intend to see some work being done by those specialists on whether current bow tie diagrams in use in the industry could be improved and developed into “full and comprehensive safety arguments”. Mr Niest agreed that the preparation of guidance material on the requirements of regulations 5.3.21 and 5.3.23 would assist the stakeholders in the industry: **Neist T 1845.6 – T1847.14; T1855.2 – 8; T1878.12 – 28.**
- 369 GDF Suez would welcome the above development and will work with VWA to review its own materials in light of any fresh guidance which is supplied by VWA: see Exhibit 94.

SECTION SEVEN: CONTRIBUTION TO THE COST OF THE FIRE

- 370 Fire Services Commissioner, Mr Lapsley, estimated the total cost of the fire at \$32.5 million: **Lapsley T2303.11 – 15**. This includes a so-called, “HR component” (namely the salaries of all the employed fire fighters who attended): **T2303.15 – 21**. The estimate does not include estimates of time devoted by volunteers. The cost is to be borne by CFA and MFB: **T2303.29 – T2304.4; T2329.5 – 13**.
- 371 Mr Lapsley suggested that there might be capacity under regulation 97 of the CFA regulations to seek recover of some of those costs, and said there will be a “conversation” with GDFSAE about this: **T2303.5 – 12; T2305.4 – 12**. This suggestion has not previously been raised with GDFSAE, but it is noted that regulation 97 is titled “Emergency Attendances” and provides that owners and occupiers of land are liable to pay fees in circumstances where, for example, they are responsible for a false alarm which requires the attendance by brigades or where someone gives a false report of a fire.
- 372 Regulation 97(c), also refers to “special circumstances” requiring the protection of life or property. There do not appear to be any legal precedents for reliance on this regulation to recover costs from someone where there is no suggestion that the person has been responsible for an unjustified attendance by a brigade. No doubt, if such a “conversation” were to be had with GDFSAE, matters including the following would be relevant to any consideration of cost recovery:
- (a) The staff of GDFSAE were the “first responders” to this fire, and fought it for some hours alone prior to the CFA attending;
 - (b) The staff of GDFSAE and contractors engaged by it were devoted to the fire fight over 45 days at great cost. The impact on production and the business was in the order of tens of millions: **Graham T2277.5 – 7**.
 - (c) GDF Suez paid to install additional fire services network pipes during the fire at a cost of: \$2.5M: **Graham T2276.25 – 30**
 - (d) Over time, GDFSAE has made a very significant contribution to the cost of provision of fire fighting services in this State. The Fire Services Levy imposed on GDFSAE in relation to Hazelwood mine is significant. A substantial sum has been contributed by these means: **Graham: T2277.12 – 17**. GDFSAE seeks leave to tender a document setting out this contributions it has made in the form of the Fire Services Levy since 2009: see attachment A to these submissions.

SECTION EIGHT: LESSONS LEARNED AND RECOMMENDATIONS PROPOSED

373 GDFSAE was the only participant to attend the Inquiry and propose a significant suite of recommendations pursuant to which it undertook to initiate changes and spend its own money: see **Exhibit 94**.

374 At times, other witnesses from various government departments and the Fire Services Commissioner indicated a willingness to go away and start to consider propositions, commence discussions or advocate for legislative change. But only George Graham, Asset Manager of Hazelwood, gave evidence that he had already decided to make changes in his business and possesses the authority to implement those changes: **Graham T2236.2 – 5**. As he said of the “red text” in his chart: “But irrespective of whether the tribunal recommended them we think they add value and we would wish to implement them”: **Graham T2234.15 – 17; Graham T2256.9 – 20**.

375 Mr Graham was forthright about the lessons he had learned from the fire. He said:

If there’s one regret I’ve got around this incident, it’s about the community engagement from GDF Suez’s perspective. Most certainly we’ve always acknowledged that the IC is the one consistent voice that would engage with the community and we would supply information to them..... I think it was the wrong outcome because it portrayed that GDF Suez did not care about the community. That’s absolutely as far away from the truth as you could actually get because we understand that the community is actually very close to us.

Part of the reason we want a sustainable business at Hazelwood is because we know we’re a big employer in the community, we know the community thrives on Hazelwood being here, so the last thing we would want to do is adversely impact on the community, but it didn’t translate through that mechanism and that’s a real shame, that.” **Graham T2252.6 – 23**.³⁶¹

376 Later, Mr Graham explained the circumstances which contributed to GDFSAE’s concern from the community not being made public early on. Mr Graham said that his personal experience had tended to focus on shorter term emergencies “with a focus on getting the event over”. During this event, his personal attention had been on his workforce. He pointed out that he had “a lot of people worried about their livelihood in terms of whether the business would continue, and that aspect of it actually continues out into the community If the business didn’t continue then obviously it would be devastating for the local area and the local people and nobody wants that to occur”: **Graham T2260.22 – T2261.1**. Mr Graham went on to acknowledge:

³⁶¹ See further at **Graham T2256.28 – 31**.

“Whilst my focus is there [ie on putting the fire out and on his workforce], it’s absolutely regrettable that we didn’t acknowledge, in an earlier fashion, the impact that we were having on the community. In terms of when we say ‘not acknowledge’ we didn’t publicly acknowledge, I accept that; what I would say however is that I can guarantee that all of the staff of GDFSAE and their contractors.... Our sole purpose was to get the fire out as soon as possible. Actually the hierarchy within that was also utilizing whatever techniques we could to abate the situation regarding smoke into the community as early as possible. I feel that in terms of the physical effort to do our best for the situation and for the community, I feel we did that; I feel we didn’t portray that so that people would realise that I’m afraid”: **Graham T2261.2 – 23.**

377 Mr Graham gave a frank and direct assurance concerning implementation by GDFSAE of the “red text” items in his chart: “In terms of going forward, obligations on me as the asset manager will have full follow up because, irrespective of what has happened before for whatever circumstances, I can assure that in relation to this it won’t happen: **Graham T2276.20 – 24.** He said further:

“I’m not going anywhere, I’m an Australian citizen now. I’m retiring here and I’m going to be in the community. Certainly, I don’t want to be in this position again. I don’t want the community to be in this position again”: **Graham T2286.13 – 22.**

378 Mr Graham’s evidence in relation to the changes he proposes (for others) and will introduce (at Hazelwood) is reproduced below for completeness. Where relevant, the chart produced by Mr Graham is cross referenced to his own evidence and that given by other witnesses relevant to the same proposals.

Subject	Description	Cost	Time frame
Responding to fire			
Phoenix modelling	<ul style="list-style-type: none"> • CFA should ensure that whenever their modelling shows a reasonably high likelihood of external fires impacting the Mine (or other critical infrastructure), taking into account the current/predicted weather conditions, it immediately sends that modelling to designated contact people at Hazelwood (and at other critical infrastructure). These conditions are referred to in this document as ‘Extreme Fire Danger Days’. • CFA should provide update modelling as is appropriate, taking into account the developing fire and weather conditions, to the recipients identified above. 	Cost not anticipated to be significant (note some of this is CFA expense).	Commence ASAP

Subject	Description	Cost	Time frame
	<ul style="list-style-type: none"> • Accompanying the Phoenix modelling maps supplied to the mine should be a statement of any urgent steps the CFA recommends be taken and provision of the details of a designated contact person at the CFA to deal with any queries and provide updates as appropriate in the circumstances re the modelling. • CFA should train a number of staff at Hazelwood in the Phoenix modelling tool, so that mine staff are able to interpret predictive maps supplied during emergency. • Hazelwood will nominate a group of staff to be trained in the modelling tool prior to the next fire season. • Hazelwood will designate specific people to receive and respond to these communications. 		
Training in fire fighting and equipment			
Specialised Mine fire fighting equipment	CFA should ensure that an appropriate level of aerial appliances is available in the Latrobe Valley for use at all mines, power stations and other critical infrastructure. By 'aerial appliances' we mean equipment which can discharge water at elevated levels e.g. aerial pumpers , telebooms , CAFs etc (but we would defer to CFA as to what is the most appropriate equipment to fight such fires). This should be available to be called out at short notice, particularly during the 'fire season'. ³⁶²	Unknown – CFA responsibility.	Commence ASAP
Fire training specific to the Hazelwood mine	<ul style="list-style-type: none"> • Hazelwood will offer enhanced training (beyond the training currently offered to the 'Morwell Group' i.e. the CFA brigades close to Morwell) prior to the next fire season and on an ongoing basis in relation to: <ul style="list-style-type: none"> ○ Orientation, maps, roads within the mine and location of fire fighting infrastructure in the Mine; ○ Ongoing use of Hazelwood escorts to accompany non-Hazelwood vehicles on- 	Mainly personnel time (to be quantified).	Commence ASAP

³⁶² Mr Graham elaborated in evidence that the arrival of this type of equipment during the fire was “a defining moment”: T2239.26 – T2240.7. See further Graham T2279.1 – 27. See also Incoll at T2162 – 2163; T2189; T2193.

Subject	Description	Cost	Time frame
	<p>site;</p> <ul style="list-style-type: none"> ○ The Mine's emergency response procedures and command structure in use during fire; ○ Communications in the mine during emergencies including compatible radio frequencies (Hazelwood will provide our own radios, as was done in the 2014 fire).³⁶³ <ul style="list-style-type: none"> • Hazelwood will also offer this enhanced training to CFA personnel and other relevant emergency service agencies (e.g. SES, Victoria Police) within a [25] kilometre radius of the Mine (appropriate radius range to be discussed with the relevant authorities). • Hazelwood will provide more training to personnel who are intended to perform a role under the emergency command structure detailed under the 'Hazelwood emergency command structure section' below. 		
Emergency response			
Hazelwood emergency command structure	<ul style="list-style-type: none"> • Hazelwood will establish an emergency command structure at the Mine to deal with Extreme Fire Danger Days whenever they arise and nominate a pool of candidates who are able to act in these roles when required. • Whenever notified of an Extreme Fire Day(s), Hazelwood will assign in advance particular roles under that emergency command structure to personnel selected from that pool of candidates to act in these roles at site. • Hazelwood will notify CFA of the identity and contact details of those personnel holding these roles. • CFA/ICC must notify Hazelwood and other critical infrastructure operators who may be impacted by the Extreme Fire Danger Day conditions about 	<ul style="list-style-type: none"> • HPP: Personnel cost plus cost of additional contracted personnel and equipment (will vary). • CFA: unknown what it would cost them to provide these notifications and updates. 	Commence ASAP

³⁶³ Mr Graham noted that: "the more we can interface with them beforehand, the better": **Graham T2241.18 – 20**. See also **Graham T2280.17 – T2282.20**.

Subject	Description	Cost	Time frame
	the level of fire fighting personnel and equipment that is available to assist, and to provide updates on such availability at a frequency that is commensurate with the level of risk in the developing situation.		
Additional fire personnel	<ul style="list-style-type: none"> • On Extreme Fire Danger Days, Hazelwood will ensure more personnel are rostered on and additional contractors are available for dedicated fire protection duties e.g. instead of one 1x7 crew, have the equivalent of two crews available, as required in the circumstances. • The amount of additional trained contractor support, including plant and equipment, will reflect internal staffing availability and, to some extent, the level of support that the CFA advises it has available. 	Additional personnel and contractor cost (will vary).	Commence ASAP
Additional signage	Hazelwood will upgrade signage within the Mine to make orientation easier for non-Mine personnel.	Cost to be quantified.	During 2014
Power supply for fighting fires			
Redundancy in power supply	<ul style="list-style-type: none"> • SP AusNet should replace the wooden poles in and around the Mine which hold the transmission lines with concrete poles to avoid loss of the poles again in fire. ³⁶⁴ • SP AusNet should install four isolator switches at the point where the 66kV lines enter Hazelwood premises (i.e. the south eastern corner of the site). This will: <ul style="list-style-type: none"> ○ increase redundancy in the 66kV supply; ○ allow SP AusNet to quickly isolate any line which is damaged; ○ restore power into the Mine quickly (which was not the case in February because there were no switches installed, requiring a lot more difficulty 	<ul style="list-style-type: none"> • Wooden poles: cost unknown – but not anticipated to be significant. • Switches: cost unknown – anticipated to be about \$100k. • Review cost: unknown. 	<ul style="list-style-type: none"> • Wooden poles and switches : ASAP (noting SP AusNet recently reinstalled wooden poles on northern batters). In particular, isolator switch installation should be a quick fix which provides

³⁶⁴ Mr Graham explained that prior to making these suggestions, he sought advice from the Mine's electrical engineers, because they had worked with SP AusNet to restore power during the fire: **Graham T2245.12 – T2247.1**. See also **Graham T2282.20 – T2283.6**. See further **Incoll T2190 – 2192**. And see **Polmear T2063.8 – T2064.6**.

Subject	Description	Cost	Time frame
	<p>and time to re-energise lines);</p> <ul style="list-style-type: none"> ○ ensure that power supply is minimally interrupted to the pumps within the site during fire. <ul style="list-style-type: none"> • Hazelwood will undertake a review of any other required steps to address any other redundancies in the electrical system. 		<p>significant immediate benefit.</p> <ul style="list-style-type: none"> • Review time: commence ASAP.
<p>Enhance redundancy of power supply to run the clean and dirty water pumps.</p>	<ul style="list-style-type: none"> • SP AusNet to conduct a feasibility study (for its consideration) to upgrade the MHO substation from 'temporary' to 'permanent' standard This has the benefit of providing an alternate power source via an underground cable from the 22kv system. Hazelwood to provide switching capability for MHO/MWW. • Hazelwood to make permanent the temporary connection that was established between MWE (supplied at 11kV) and clean/dirty water pumps. • This provides power sources from the 66kV, 22kV and 11 kV systems.³⁶⁵ 	<ul style="list-style-type: none"> • MHO upgrade: cost unknown. • Additional switching capability: \$50k. • MWE- clean/dirty water pump 11 kV connection: around \$750k. 	<ul style="list-style-type: none"> • MHO upgrade: time frame unknown. • Additional switching capability time frame: Around 6 months • MWE- clean/dirty water 11 kV connection: possibly 6 months.
Fire risk mitigation			
<p>Vegetation</p>	<p>Hazelwood will initiate a programme for reducing vegetation in the worked out areas of the northern batters to reduce fire risk (insofar as is consistent with OH&S requirements and the stability properties of the vegetation) commencing in the areas closest to Morwell.³⁶⁶</p>	<p>Cost unknown.</p>	<p>Clear north eastern batters before November 2014 and have an ongoing program for the appropriate management of vegetation in the rest of the northern batters.</p>

³⁶⁵ Mr Graham explained that all these changes would offer a number of layers of redundancy: **Graham T2247.29 – T2248.4.**

³⁶⁶ In evidence, Mr Graham confirmed that while recognising the only obligation in the Code pertained to external vegetation having vegetation on the worked out batter slopes is not desirable. As a result the Mine will introduce the program of clearing vegetation: **Graham T2248.5 – 15.**

Subject	Description	Cost	Time frame
Pipework	<ul style="list-style-type: none"> • Hazelwood will maintain and continue to use the additional pipe system located in the northern batters which was installed during the 2014 fires. • Hazelwood will install additional pipework and hydrants in the areas marked on the northern batters shown in the broken aqua coloured line in the attached plan (the “eastern section of the northern batters”).³⁶⁷ • This will have the effect that the area shown is covered by: <ul style="list-style-type: none"> ○ Rehabilitation that has occurred prior to 2014; ○ Rehabilitation proposed to be undertaken during 2014; ○ Undisturbed land (i.e. grassed areas that don’t contain exposed coal); ○ Sprinklers which are currently installed on the northern batters; or ○ Additional sprinklers to be installed on the northern batters. • Conduct a review (to be undertaken by external consultants working with Hazelwood personnel) of the current pipework and condition in the areas of the Mine other than the eastern section of the northern batters.³⁶⁸ • The outcome of the review would be made known to DSDBI/VWA 	Review cost unknown: may be around \$100k.	Target: December 2014 (note subject to weather/ground conditions).
Wetting down non-operational areas	On Extreme Fire Danger Days Hazelwood will instigate wetting down of non-operational areas. ³⁶⁹	Additional water and personnel. Not anticipated to be significant.	Commence ASAP

³⁶⁷ Mr Graham explained where the additional pipes would go by reference to the map which was tendered as part of **Exhibit 94**; see also at **Graham T2248.16 – T2249.23**.

³⁶⁸ **Graham T2249.24 – T2250.11**.

³⁶⁹ Mr Graham said in evidence that “listening to evidence” he formed the view he needed to “move the focus away through the events we’ve had from a very high focus on the operational areas to a more global focus on the risk to the whole mine”: **Graham T2250.12 – 24**.

Subject	Description	Cost	Time frame
Planning and communication in relation to fire			
Integrated Fire Management Planning	<ul style="list-style-type: none"> LCC prepares a Municipal Fire plan and engages in Integrated Fire Management Planning. Hazelwood will nominate a representative from Hazelwood from its planning and emergency sections to attend the meetings of the Municipal Fire Prevention committee convened by LCC. Integrated fire management planning will be enhanced if LCC also invites the CFA and the owners and operators of other critical infrastructure in the Latrobe Valley to attend (including other mine owners, SP AusNet and other industry affected by fire risk, including plantations and mills). 	Mainly personnel time (to be quantified).	Commence ASAP
Communication between agencies during an emergency response	<ul style="list-style-type: none"> On Extreme Fire Danger Days, the CFA should permit representatives of crucial infrastructure in the Valley to attend the ICC to be fully briefed on the fire threat and on any ongoing fires.³⁷⁰ Hazelwood will nominate designated people from Hazelwood to be in attendance at the CFA ICC during an emergency which threatens the Mine. 	Not anticipated to be significant.	Commence ASAP
Community engagement	<ul style="list-style-type: none"> The CFA should convene a review by the entities likely to be involved in responding to a fire, particularly a long running fire (e.g. including at least SP AusNet, LCC, DSDBI, VWA, Vic Police, LV mine operators, CFA , DoH, EPA). Participants in this review should jointly review their community communications protocol prior to the next fire season. During the review, the responsibility of each entity for each type of messaging should be clarified. Hazelwood will participate in such a review. Hazelwood will also review its own communications protocol to ensure that during the response to fire which is capable of impacting on the community, it is able to communicate messages to the community via any protocol 	Cost not anticipated to be significant.	Commence ASAP

³⁷⁰ Mr Graham noted that without wishing to impose on the ICC, it is “where the knowledge sits” and accordingly being there would assist: **Graham T2251.14 – 29.**

Subject	Description	Cost	Time frame
	adopted following the review by all agencies.		
Occupational Health and Safety			
Major Mining Hazard Safety Assessment under OH & S Regulations	<ul style="list-style-type: none"> VWA should prepare guidance material in relation to the requirements for mine operators of Regulations 5.3.21 and 5.3.23. Hazelwood will work with VWA to review its Safety Assessment and Safety Management System in light of Regulations 5.3.21 and 5.3.23.³⁷¹ 	Not anticipated to be significant.	ASAP, in consultation with VWA.
CO protocol	CFA and Hazelwood to develop a CO management protocol for fire fighter and mine employee safety prior to the next fire season, in consultation with VWA. ³⁷²	Cost not anticipated to be significant	Commence ASAP
Rehabilitation			
Rehabilitation according to Work Plans	<ul style="list-style-type: none"> Hazelwood will undertake the rehabilitation set out in Annexure 5 to the Faithful statement. Noting that there appears to be ambiguity in the current Work Plans about whether the dates specified are for rehabilitation to be <u>commenced</u> or <u>completed</u> by that date, as part of the ongoing discussions with DSDBI re the 2013 WPV, Hazelwood will discuss the appropriate timing of each sequence of rehabilitation works.³⁷³ DSDBI should clearly specify in the 2013 Work Plan Variation the dates for commencement and completion of progressive rehabilitation following an assessment, in consultation with Hazelwood, of: <ul style="list-style-type: none"> (a) the availability of suitable materials from within the Mine; (b) the progression of mining in accordance with the Work Plan (as varied by agreement with 	<ul style="list-style-type: none"> Cost of rehab set out in Annexure 5: approximately \$800k. Cost of discussions: nil. Cost of varying rehabilitation works program: unknown. 	<ul style="list-style-type: none"> Undertake rehab set out in Annexure 5 by Dec 2014. Time frame for discussion with DSDBI: soon, as part of the ongoing discussions re 2013 WPV.

³⁷¹ **Graham T2254.2 – 11.** In terms of future approaches to risk assessment and enhancements, he said “You cannot ignore – you know, a lot of the things around risk assessment is based on evidence of what happened, you have to take that into account, that has to influence the way you will progress going forward” **Graham T2274.1 – 14.** Later Mr Graham accepted that “hindsight is a great thing” and noted that the hierarchy of risk (which had previously been focussed on major mining hazards and major risks to the business) would now change in light of this “huge event” which does not fit in that category: **Graham T2259.8 – T2260.10.**

³⁷² Mr Graham said that there were “gaps” and that we “don’t want different protocols across different organisations”: **T2254.12 – 27.**

³⁷³ **Graham T2255.21 – T2256.8**

Subject	Description	Cost	Time frame
	DSDBI from time to time); and (c) geotechnical/stability constraints.		

P RIORDAN

R DOYLE

S BURCHELL

KING & WOOD MALLESONS

Date: 18 June 2014

IN THE MATTER OF THE HAZELWOOD MINE FIRE INQUIRY

WRITTEN SUBMISSIONS OF GDF SUEZ AUSTRALIAN ENERGY – ATTACHMENT A

**FIRE SERVICE LEVY PAYMENTS BY HAZELWOOD POWER PARTNERSHIP
FOR PERIOD OCTOBER 2011 TO JUNE 2014**

Period	Expense	How paid
2 October 2011 - 31 May 2012 (insurance)	\$ 1,335,981.25	Insurance levy
1st June 2012 - 31 May 2013 (insurance)* (*Excludes payment for June 2013)	\$ 2,842,077.99	Insurance levy
1 July 2013 – 30 June 2014	\$1,589,570.00	Rates notice