HAZELWOOD MINE FIRE INQUIRY

PUBLIC HEARINGS 1ST-3RD & 9TH SEPTEMBER 2015

SUBMISSIONS BY COUNSEL ASSISTING

TERM OF REFERENCE 6

Applicable Legal Issues

1. Paragraph (6) of the Terms of Reference requires the Board to inquire into and report on whether the Hazelwood Coal Mine Fire "contributed to" an "increase in deaths" in 2014 having regard to any relevant evidence for the period 2009-2014.

2. "Contributed to" is an ordinary English expression. "To contribute" means "to play a part in the achievement of a result".[1] "To contribute" is not the same as "to cause". It is submitted that an event can contribute to an outcome without necessarily causing the outcome.

3. In a public inquiry such as one conducted pursuant to Part 3 of the *Inquiries Act* 2014 (Vic.), the Board is not bound by the rules of evidence. Nor do any practices or procedures applicable to courts of record have application.[2] A finding of fact must be based on "some material that tends logically to show the existence of facts consistent with the finding". Further, the reasoning supporting the finding must not be "logically self-contradictory".[3]

4. The learned author of *Justice in Tribunals* states that this test may be less demanding than the 'balance of probabilities' test applicable to proof in civil litigation.[4]

5. We submit that, in carrying out its fact finding role in relation to this term of reference, the Board should follow the *Briginshaw* formula. A finding that the Hazelwood Mine fire contributed to an increase in deaths could have significant adverse consequences for a range of parties and should therefore not be made unless the evidence before the Board leads to a "reasonable satisfaction" having regard to the consequences for any affected parties.[5]

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[1] *New Shorter Oxford English Dictionary* (4th ed., 1994).
[2] *Inquiries Act* 2014 (Vic.), s. 61.
[3] *Mahon v Air New Zealand* [1984] AC 808 at 820-1.
[4] JRS Forbes, *Justice in Tribunals*, (Federation Press, 4th ed, 2014) at [17.17].
[5] *Briginshaw v Briginshaw* (1938) 60 CLR 336 at 361-362; see also JRS Forbes, *Justice in Tribunals*, (Federation Press, 4th ed, 2014) at [17.17].

The Expert Evidence

6. The Board has heard from a group of eminent experts:

   a. Emeritus Professor Bruce Armstrong, a doctor and epidemiologist from the University of Sydney;[6]

   b. Professor Ian Gordon, the Director of the Statistical Consulting Centre and Professor of Statistics in the School of Mathematics and Statistics at the University of Melbourne;[7]

   c. Associate Professor Adrian Barnett, a statistician from the Queensland University of Technology;[8] and

   d. Dr Louisa Flander, an epidemiologist from the University of Melbourne.[9]

7. **Associate Professor Adrian Barnett** was contacted in September 2014 by the Australian Broadcasting Corporation to analyse Latrobe Valley mortality data that had been provided to the ABC by Voices of the Valley ("VoV").[10] In response to that contact, Associate Professor Barnett produced a report entitled 'Analysis of death data during Morwell mine fire' (September 2014).[11] In that report, Associate Professor Barnett compared mortality data in the four postcodes in February-March 2014 with the average of the corresponding months from 2009-2013 and reached the following conclusion:

> *The probability that the death rate was higher than the average during the fire is 0.89. This means that the probability that the death rate was not higher than the average during the fire is 0.11. The mean increase in deaths… as a relative risk is 1.14, or 14 as a percentage. The absolute number of deaths per postcode per month is 1.8, which over 4 postcodes and 2 months is 14.1.*[12]

8. Associate Professor Barnett produced a second report in late 2014 in response to a direct request from VoV.[13] The second report is entitled 'An updated analysis of death data during the Morwell mine fire'.[14] Associate Professor Barnett explained to the Inquiry that additional mortality data was provided to him by VoV. The additional data related to deaths in all months between 2004 and 2014 in the original four postcodes plus 3869 and 3870.[15]

9. Associate Professor Barnett analysed the new data and concluded:

> *The updated analysis gives a 79% to 82% probability of an increase in deaths during the two months of the fire. This is similar to the 80% to 89% probability from the previous analysis.*

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[6] Professor Armstrong's CV is part of Exhibit 28
[7] Professor Gordon's CV is part of Exhibit 29
[8] Associate Professor Barnett's CV is Exhibit 25
[9] Dr Flander's CV is Exhibit 24.
[10] Evidence of Barnett, T456:1-28. The mortality data he received related to four Latrobe Valley postcodes (3840, 3842, 3825 and 3844) for the years 2009-2014.
[11] Exhibit 26
[12] Exhibit 16, p.4.
[13] Evidence of Barnett, T457.20.
[14] Exhibit 27.
[15] Evidence of Barnett, T457.12-458.5.

The reduction in probability is because the two additional postcodes (3869 and 3870) showed a slight reduction in death risk.[16]

10. Associate Professor Barnett was subjected to lengthy cross examination by Senior Counsel for GDF Suez, Mr Neal QC. Counsel drew Associate Professor Barnett's attention to email correspondence that had passed between himself and VoV.[17]

11. In particular, his attention was drawn to:

    a. an email dated 22 January 2015 to Wendy Farmer of VoV in which he had endorsed as a "great idea" a proposal by VoV to release his report to the media on 9 February 2015, the first anniversary of the Hazelwood mine fire; and

    b. an email dated 5 February 2015 to Wendy Farmer in which he had said, in the context of a discussion about the limited data because of the small number of deaths under examination, that "One way to bolster the arguments is to cite the very many larger studies that have consistently shown an increased risk of death after exposure to pollution".

12. In relation to the first email, as Associate Professor Barnett explained in his evidence to the Inquiry, this was based on his experience of engaging the media.[18] He rejected the suggestion that he was "starting to be part of the campaign" and pointed out that he was very protective of his reputation as a bioscientist.[19]

13. So far as the second of these emails is concerned, it was put to Associate Professor Barnett that it showed he had crossed the line from being an independent expert to "advocating for a cause".[20] It was put to him that he had assumed the role of "expert advisor-cum-consultant-cum-advocate".[21] He rejected this and told the Board that he had "always felt very down the line with the science".[22]

14. The purpose of the examination by Mr Neal QC appeared to be to undermine the credibility of Associate Professor Barnett as an expert witness. However, importantly, and unlike Dr Flander, Associate Professor Barnett has never been held out as an independent witness by VoV or anyone else.

15. It is our submission that the phrase "bolster the argument" used by Associate Professor Barnett was unfortunate in the circumstances. However, and crucially, it was never suggested to him that he had been asked to alter any aspect of his reports by anyone else. He confirmed that no such request had ever been made of him.[23] Further, his statistical analysis was endorsed by the other experts.

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[16] Exhibit 27, p.1.
[17] Exhibit 7 is a bundle of this correspondence.
[18] Evidence of Barnett, T547.6-19.
[19] T547.27-548:6.
[20] T554.18-24
[21] T555.3
[22] T555.5
[23] T606.20-25

16. **Dr Louisa Flander** of the Melbourne School of Population and Global Health, University of Melbourne, was engaged by the Department of Health ("DHHS")[24] in September 2014.[25] She was provided with a copy of Associate Professor Barnett's 2014 report (Exhibit 26) and the Victorian Registry of Births Deaths and Marriages ("RBDM") dataset. The Brief was to "undertake an analysis of the attached death data set from the BDMV, and advise if any conclusions can be drawn about any increase or decrease in deaths during the time of the fire (February to March 2014) or for the whole period (January to June 2014)".[26]

17. Dr Flander and her colleague Dr English provide a report to the Department on 26 September 2014.[27] They concluded that "slightly more deaths occurred in the period January to June 2014 compared with the period January to June 2009-13 but the evidence this is not due to just chance alone is inconclusive". They did not find the increase to be "conclusive evidence of any particular effect".[28]

18. On 2 February 2015, the Department engaged Dr Flander to produce a further report after committing to providing her with further mortality data, as well as pollution and temperature data.[29] In the brief, Dr Flander was asked to update her earlier analysis. In addition, Dr Flander was asked to undertake a "critical analysis" of the work of Associate Professor Barnett.[30]

19. Dr Flander and her colleagues produced two reports in response to this brief:

    a. A report dated 28 April 2015 which appraised the two reports of Associate Professor Barnett;[31] and

    b. An updated analysis of the mortality data in the Latrobe Valley dated 4 June 2015.[32]

20. In the first of these reports, Dr Flander was critical of Associate Professor Barnett stating that his key assertions "are not supported by the results reported in [his] paper"[33] Further, they concluded that the results obtained by Associate Professor Barnett "show in fact that

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[24] Shortly after the 29 November 2014 State election, the Department of Health changed its name to the Department of Health and Human Services (see evidence of Linda Cristine at T300.19-30). For the purpose of these submissions, each reference to DHHS or "the Department" in a period prior to the State election is to be taken to be a reference to the Department of Health.

[25] On 16 September 2014, the Chief Health Officer (Dr Lester) wrote to Professor Terry Nolan asking for a "quick review of death data in the Latrobe Valley": Exhibit 16.

[26] See att. 5A to the statement of Linda Cristine (Exhibit 3).

[27] Exhibit 21.

[28] Exhibit 21, p.2.

[29] Exhibit 3, [16.2].

[30] Dr Flander was first asked to appraise the work of Associate Professor Barnett on 23 September 2014 when Dr Lester asked her to "comment on the appropriateness of the analysis by Barnett". The emailed response of Dr Flander on the same day included the following: "I am not sure what to say about the Barnett analysis, other than that the statistical solution is appropriate and more nuanced than ours, as he included the seasonal influence of temperature in one model. It is important to note that his result is not different to ours…": see Exhibit 16 [DHHS.1008.001.0050]. Dr Flander explained to the Inquiry that she had in fact turned the request to critique Associate Professor Barnett's work down because at the time she said that she was "not qualified to evaluate his work given that it was from a different perspective, different discipline and so on and on": T448.25-28.

[31] Exhibit 22.

[32] Exhibit 23.

[33] Exhibit 23, p.2.

there were *no* additional deaths, rather than the 0.8 deaths per postcode per month and 9.6 deaths per postcode over two months reported by Barnett (2015)".[34]

21. In the June 2015 report, Dr Flander and her colleagues examined the effects of high rates of particulate matter pollution and temperature variations on mortality rates in the Latrobe Valley in the years 2009-2014. Importantly, they concluded that "there is statistical evidence that air quality exceedances are associated with mortality throughout the study period, not just during the period of the 2014 Hazelwood coal mine fire, or the 2009 bushfire".[35] They also concluded that "as mortality was associated with air quality over 50 μ/m3 for PM_{10}, and the fire may have contributed to this measure of air quality, it is possible that a proportion of deaths in 2014 could have been due to the fire in February-March 2014".[36]

22. As noted in the discussion at [103]-[116] below, each of the reports submitted to the Department of Health were provided in draft form to the Department and were the subject of extensive comments by Departmental officers. We address the significance of this at that point of our submissions.

23. **Emeritus Professor Bruce Armstrong** was engaged by the Board of Inquiry to address the following matters:

    a. Consider the mortality information provided by the Registrar of Births, Deaths and Marriages;

    b. Review the mortality assessments undertaken by DHHS and other organisations commissioned by the Department;

    c. Review the mortality assessments undertaken by any third parties e.g. Associate Professor Adrian Barnett;

    d. Consider any relevant public submissions, case reports.[37]

24. The Board provided Professor Armstrong with a number of documents about mortality in the Latrobe Valley in the years 2009-2014. These documents had been sourced by the Board from the Department of Health and Human Services; RBDM and the Coroners' Court.[38]

25. In his report to the Board entitled 'Expert assessment and advice regarding mortality information as it relates to the Hazelwood Mine Fire Inquiry Terms of Reference – Final Report' dated August 2015, Professor Armstrong reached 14 conclusions.[39] In response to the question: 'Was there an increase in mortality in Latrobe Valley during the coal mine fire in 2014?', Professor Armstrong concluded:

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[34] Exhibit 23, p.5, emphasis in the original. 'Barnett (2015)' is a reference to Exhibit 27.
[35] Exhibit 23, p.2.
[36] Exhibit 23, p.3.
[37] Report of Professor Armstrong, Exhibit 28, p.3.
[38] The information provided to Professor Armstrong is listed in Exhibit 28 at p.4.
[39] Exhibit 28, pp 24-26. In his oral evidence to the Inquiry on 2 September 2015, Professor Armstrong made some minor amendments to the wording of his report including to his conclusions – see T463:21 – T464:25. Those changes have been incorporated into these submissions.

a. *There is moderate evidence for a higher mortality from all causes and from cardiovascular disease in Latrobe Valley in February-June 2014 than in the same period 2009-13.*

b. *There is weak evidence that the increases in mortality in February to March 2014 (the period of the mine fire) were greater than those in the longer period February to June 2014.*

c. *Barnett (2015) reported a 10% higher mortality in Latrobe Valley during February and March 2014 relative to that in the same months in 2004-13. This estimate is broadly consistent with other estimates in this report but probably attenuated and made statistically weaker by the inclusion of two additional Latrobe Valley postcodes in the analysis.*[40]

26. **Professor Ian Gordon,** the Director of the Statistical Consulting Centre and Professor of Statistics in the School of Mathematics and Statistics at the University of Melbourne was engaged in August 2015 by VoV.[41] He was asked to examine the RBDM data and advise if he considered that the mine fire contributed to an increase in deaths in the Latrobe Valley and to explain the bases of his views. He was provided with the reports of Professor Barnett and Dr Flander.

27. Professor Gordon provided VoV with a report dated 11 August 2015 which was tendered in evidence at the Inquiry.[42] In his report, Professor Gordon noted that the reports of Associate Professor Barnett and Dr Flander arrived "at broadly similar conclusions, which is [sic] that there was an excess of deaths in association with the fire, of between 11 and 18 deaths, approximately, on the basis of comparison with the previous five years, in the area of interest".[43]

28. He concluded that based on his own analysis of the data, "in which the period of potentially different risk is assumed to extend beyond the actual time of the fire (for example, to May 2014), the excess of deaths is statistically significant at conventional levels".[44]

29. The four experts accepted an invitation to participate in a facilitated meeting at the Inquiry's office on Monday 31 August 2015.[45] At the meeting the experts were asked to discuss the conclusions in Professor Armstrong's report to the Board and to see if it was possible to reach agreement on any or all of those conclusions.[46]

30. Associate Professor Barnett explained what took place at the meeting and, in particular, the role that was played by Ms Monica Kelly,[47] the Inquiry staff member who facilitated the meeting.[48] Professor Armstrong, who chaired the meeting, agreed with this description.[49]

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[40] Exhibit 28, pp 24-25 (as amended in evidence of Professor Armstrong on 3 September 2015)
[41] The letter of engagement dated 5 August 2015 is part of Exhibit 29.
[42] Exhibit 29.
[43] Exhibit 29, [39].
[44] Exhibit 29, [40].
[45] The letters of invitation dated 25 August 2015 sent to all four are part of Exhibit 30.
[46] Evidence of Armstrong, T465.15-19.
[47] We note that counsel for Dr Lester, Mr Blanden QC referred, without elaboration, to the presence of Ms Kelly at the meeting as being "very unusual" at T260.3. In light of evidence about her role, this concern would appear to be misplaced.
[48] Evidence of Barnett, T458.19-459.11.
[49] Evidence of Armstrong, T465.7.

31. Apart from their obvious expertise across a range of intersecting fields of scientific endeavour, a number of aspects of the evidence given by these experts was noteworthy:

    a. The professionalism of their collaborative approach;

    b. The mutual respect with which they regarded each other and the process in which they were involved;

    c. Their thought and care with the language they used to express their conclusions;

    d. Their preparedness to compromise and defer to others where this was called for; and

    e. Their willingness to acknowledge frankly where the evidence pointed away from their preferred conclusions.

32. In these circumstances, we submit that the Board should not hesitate to act on the conclusions reached by the experts especially where those conclusions are agreed to all of them and are supported by the evidence before the Inquiry.

33. It is submitted that what emerges from the totality of this evidence is that the Board should approach its task by seeking to answer the two questions posited by Professor Armstrong at pages 24-25 of his Report to the Board:

    a. **Was there an increase in mortality in Latrobe Valley during the coal mine fire in 2014?; and**

    b. **What environmental exposures might have increased mortality in Latrobe Valley during the coal mine fire in 2014?**

34. Clearly question (b) only arises if question (a) is answered in the affirmative.

35. The Joint expert report answers the first question at paragraphs 1.1 – 1.3. We submit that the Board should answer the question in precisely the terms employed by the four experts at paragraphs 1.1 and 1.2 of their joint report:

> *There is moderate evidence for a higher mortality from all causes and from cardiovascular disease in Latrobe Valley in Feb-Jun 2014 when compared to the same period during 2009-2013.*
>
> *There was some evidence that the increase in mortality in Feb to Mar 2014 (the period of the mine fire) was greater than the increase in mortality during Feb to Jun 2014.*

36. We submit that the Board should also make a finding in terms of what appears at the top of page 2 of the joint expert report:

> *If the period of risk to health is assumed to extend beyond the actual time of the fire (for example, to May 2014), the excess of deaths is statistically significant at conventional levels.*[50]

37. In relation to the second question, the starting point is to acknowledge that, as Professor Armstrong noted, it is to be answered having regard to "the fact that the evidence for the increase is itself not strong".[51]

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[50] This finding should reference [14] and [40] of the report of Professor Gordon (Exhibit 29) as well as his evidence at T604.11-21.

[51] Evidence of Armstrong, T518.15-18.

38. However, even having regard to that caveat, we submit that it is open on the evidence for the Board to identify the most likely of the explanations for the numerical increase. Once again, in the words of Professor Armstrong, the most likely of the various explanations that can be put forward is that "the increase of deaths was due to the increase in particulate pollution of the air during [the period of the mine fire] most likely due to the mine fire but possibly added to by bushfires that occurred at the same time".[52]

39. Professor Armstrong identified two principal reasons for this opinion:

    a. The findings of Dr Flander and her colleagues in their June 2015 report that there was a relationship between particulate pollution and the risk of death in Latrobe Valley;[53] and

    b. The large body of evidence to indicate that short-term increases in particulate pollution are associated with short-term increases in deaths as well as long-term exposure being associated with longer term increase in deaths.[54]

40. There is considerable evidence before the Board about the adverse health effects associated with the inhalation of particulate matter.[55]

41. Professor Gordon was in "substantial agreement" with this opinion of Professor Armstrong[56] as was Associate Professor Barnett.[57] Dr Flander had no "fundamental disagreement" with Professor Armstrong and had "no objection to the further analyses done by Associate Professor Barnett and Professor Gordon."[58]

Suggested Inconsistencies

42. All four experts were extensively questioned by other counsel, particularly by Senior Counsel for GDF Suez. The experts were asked a number of questions which they answered to the extent that they were able to.

43. There appeared to be three main areas in which, it was suggested, the evidence was inconsistent with the two ultimate conclusions reached. These were:

    a. The 19% decrease in deaths in Morwell during the fire as compared to the previous five years;

    b. The modelling undertaken in the Rapid Health Risk Assessment; and

    c. The lack of evidence demonstrating an increase in respiratory morbidity during the fire.

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[52] Evidence of Armstrong, T518.20-26.
[53] As to which see third report of Flander and others (Exhibit 23) at pp 16-17.
[54] Evidence of Armstrong, T518.30-519.3.
[55] See evidence of Barnett, T525.3-16; see also Abramson and Others, *Rapid Health Risk Assessment* (12 March 2014), attachment RAL-2 to statement of Rosemary Lester dated 24 August 2015 (Exhibit 14) at p.7; report of Dr Burdon (Exhibit 32); HMFI First Report at pp 310-312.
[56] Evidence of Gordon, T520.18-21.
[57] Evidence of Barnett, T526.26-527.1.
[58] Evidence of Flander, T527.5-11.

44. For the reasons outlined below, however, it is submitted that close analysis of each of these matters does not warrant a rejection of the overall conclusions reached by the expert panel.

Morwell Data

45. Evidence was given at the hearing by Dr Rosemary Lester, the Chief Health Officer during the mine fire, to the effect that she did not consider the proposition that the fire led to an increase in deaths to be logical in light of the 19% observed decrease in deaths in Morwell during February-March 2014. This was because Morwell suffered greater exposure to $PM_{2.5}$ than other locations such as Moe and Traralgon such that she would have expected any increase to be observed there.[59]

46. Professors Armstrong and Gordon were each asked about this. Professor Armstrong conceded that this figure was "inconsistent" with the general thrust of the evidence[60] but suggested that there were a number of reasons why he would "discount" this aspect of the evidence "in reaching a conclusion".[61]

47. The first such reason is the "imprecise" nature of the Morwell data.[62] As Professor Armstrong explained the 95% confidence intervals for the comparison between deaths in Morwell in February-March 2014 and to the corresponding period in 2009-2013 range from 0.51 to 1.26.[63] Professor Armstrong opined that the statistical evidence for this difference is "quite weak".[64] One interpretation of the Morwell figures is that they may well be the result of natural variation.

48. Similarly, Professor Gordon noted that the observed rate ratios must be understood in the context of the "very small numbers".[65]

49. The second reason is that, as Professor Gordon explained, the readings of $PM_{2.5}$ pollution that vastly exceeded the advisory standard of 25 μ/m3 measured over one day were taken in Morwell South.[66] This is supported by the evidence in figure 4.27 of the HMFI First Report.[67]

50. As is demonstrated in fig. 4.14 of the HMFI First Report,[68] the recording location designated as 'Morwell South' was the bowling club, very close to the northern edge of the mine. The 'Morwell East' measuring station was at Hourigan Road in the top right hand corner of fig. 4.14.

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[59] T414.13-20.
[60] Evidence of Armstrong, T519.30
[61] Evidence of Armstrong, T520.11-12.
[62] T607.27.
[63] See report of Armstrong, Exhibit 28, Table 1.
[64] Exhibit 28, p.5; see also T607.10-23.
[65] T521.20-27.
[66] T522.5.
[67] P.277.
[68] P.269.

51. As Professor Gordon opined in his evidence before the Board, many of Morwell's residents live in the vicinity of the Morwell East location. The readings there were not that different to those in Traralgon on comparable days during the fire.[69]

52. As Professor Gordon explained it:

> *...part of the explanation is actually it was bad elsewhere in the Latrobe Valley as well as in Morwell and perhaps a simplistic assumption is well, it was terrible in Morwell so we should see it worst here is mitigated a bit about the evidence about that the particulate material was elsewhere in the Latrobe Valley during the period.*[70]

53. The third reason is related to the second. As Professor Armstrong noted, as early as 14 February 2015, citizens of Morwell in 'at risk' groups were advised by the Department of Health to consider temporarily staying with a friend or relative outside the smoke-affected area.[71] This advice was confirmed on 25 February 2015 and, on 28 February 2015, was upgraded to advice to temporarily re-locate. Significantly, this latter advice was targeted specifically at people living or working in the southern part of Morwell.[72]

54. The potential impact of evacuations is reflected in the joint expert report at [2.4]. During their discussions on 31 August 2015, the experts added a section that reads: "However, this conclusion [about Morwell's data] does not take account of evacuation of some residents from Morwell during the period of the mine fire, which might explain the lack of observed increase in mortality".[73]

55. Given that 65% of all Morwell households received financial assistance for the purposes of respite or relocation,[74] it is likely that a significant part of the population of Morwell generally but southern Morwell in particular acted on this advice and left Morwell.

56. As Associate Professor Barnett explained based on his analysis of the data, if around 20% of the population of Morwell left during the fire, this would cancel out the statistical decrease. If 30% left, "the relative risk starts to become very similar to those relative risks in other postcodes".[75]

57. Finally, it is likely that some residents of other Latrobe Valley locations (such as Moe and Traralgon) travelled to Morwell to work in Morwell during the period of the fire.[76] If any of those people died, they would be recorded as Moe or Traralgon deaths based on their postcode of residence.

The Rapid Health Risk Assessment

58. The second matter that it appears has been suggested contradicts the experts' final conclusions is that a Rapid Health Risk Assessment undertaken by Monash University

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[69] T522.6-23.
[70] T522.26-523.1.
[71] HMFI First Report p.325.
[72] T429.18-23.
[73] Exhibit 30; see also T585:30-T586:3.
[74] HMFI First Report p.370.
[75] T526.2-16.
[76] As Dr Lester accepted at T419:22-28.

during the mine fire concluded that no additional deaths in Morwell would be expected even if the exposure continued for six weeks.[77] This was referred to by Senior Counsel for Dr Lester in his opening remarks as a "predictive report...as to the likely effect of the fire."[78]

59. This conclusion, however, was based on modelling which contained some relevant limitations.[79] They include:

    a. The modelling used exposure events which were not directly comparable to the mine fire[80] and no one had specifically designed a model for exposures of this duration;[81]

    b. There was no data for the exposure levels in Morwell during the first few days of the fire and it was quite likely the exposure was higher in those days. Professor Abramson conceded this means it is, therefore, possible that the modelling underestimated the true effect of exposure on the Morwell population;[82]

    c. It did not consider occupational exposure[83] which may have been more significant;

    d. It did not take account of any particularly vulnerable groups nor allow for particular health vulnerabilities in the Morwell population;[84] and

    e. There were no data available for a number of pollutants and the model was based on exposure to one pollutant rather than a number in combination.[85]

60. Importantly, Professor Abramson gave evidence to the Board that the conclusion reached in the Rapid Health Risk Assessment should not be taken to be a conclusion the Board can rely on to posit that there were, in fact, no deaths attributable to the mine fire.[86] He referred to it as being the "best estimate we could make at the time, based on the data that were available to us and the model that we used."[87] Significantly, Professor Abramson was not asked at any stage to analyse morbidity or mortality data for the period of the fire (or comparison periods).[88]

61. In these circumstances, it is submitted that the Rapid Health Risk Assessment does not provide any real basis for disregarding the experts' ultimate conclusions.

Morbidity Data

62. The third suggested inconsistency is that there were no data indicating an increase in respiratory morbidity during the fire. This may be said to tend against any finding that it

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[77] RHRA (attached to Exhibit 14) p.5.
[78] T261:11.
[79] A number of which were acknowledged by Dr Lester in her evidence: T424.31-425.13; T427.19-26; T427.27-428.1.
[80] T345.30-346.2; T354.18-27.
[81] T358.18-21.
[82] T355.16-23.
[83] T358.5-12.
[84] T359.13-31.
[85] RHRA (attached to Exhibit 14) p.5.
[86] T360.1-8.
[87] Ibid.
[88] T362.1-7.

was the mine fire which contributed to any observed increase in deaths because one would expect to see respiratory morbidity in such circumstances.

63. Professor Armstrong was asked specifically about this matter. While deferring to Professor Abramson's greater expertise in the area, Professor Armstrong explained that based on his recent examination of the relevant scientific literature, he "would not necessarily expect to see an increase in respiratory deaths but...would expect to see an increase in cardiovascular deaths" if the fire had contributed to an increase in deaths.[89]

64. This evidence was not, in fact, contradicted by Professor Abramson. Nor was it ever put to Professor Abramson directly that one could infer from the morbidity data from the Latrobe Valley that there was no increase in deaths associated with the mine fire.

65. Professor Abramson, along with colleagues, undertook a literature review as part of the Rapid Health Risk Assessment. This was updated in 2015. The review did not disclose any study of a directly comparable event to the mine fire.[90] Professor Abramson also gave evidence that the conclusions drawn from the literature were based on just one study (the Morgan study)[91] of an event which was relevantly different to the mine fire both in terms of duration, proximity and type of exposure.[92] That study considered the effect of bushfires on daily mortality and hospital admissions in Sydney.

66. With these important qualifications, Professor Abramson summarised the literature as follows:

    a. Most of the deaths that occur in association with air pollution appear to be due to cardiovascular disease, but some will be due to cancer and respiratory disease;[93]

    b. The Morgan study found that bushfire PM_{10} was not significantly associated with mortality but that it was associated with respiratory admissions;[94]

    c. It is unlikely that increased mortality could be observed without a detectable increase in morbidity;[95]

    d. The literature reviewed suggests respiratory and cardiovascular morbidity would be an expected concomitant of a substantial air pollution event such as this.[96] However, it is not possible to definitely conclude that increased mortality could occur in the absence of observed increased morbidity.[97]

67. This too, then, upon analysis, does not detract from the persuasiveness of the views of the expert panel.

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[89] T599.25-28
[90] T362.8-15.
[91] 362.16-363.7.
[92] 362.16-363.7; T368.17-21; T370.21-23; T375.11-377.1.
[93] T366.28-31.
[94] RHRA (attached to Exhibit 14) p.9.
[95] Ibid p.14.
[96] T367.1-4.
[97] Updated Literature Review (attached to Exhibit 6) p.3.

Final Position of Experts on Suggested Inconsistencies

68. Professors Armstrong and Gordon and Associate Professor Barnett were each asked if the answers they gave to other counsels' questions should be taken by the Board as detracting from the evidence we have summarised above. Each clearly answered that they should not.[98]

Proposed findings

69. In these circumstances, we submit that the Board should not hesitate to act on the evidence of the experts and should find, applying to the *Briginshaw* formula that:

    a. There is moderate evidence for a higher mortality from all causes and from cardiovascular disease in the Latrobe Valley in February to June 2014 when compared to the same period during 2009-2013;

    b. There is some evidence that the increase in mortality in February to March 2014 (the period of the mine fire) was greater than the increase in mortality during February to June 2014;

    c. If the period of risk to health is assumed to extend beyond the actual time of the mine fire (for example, to May 2014), the excess of deaths is statistically significant at conventional levels;

    d. The most likely explanation for the increase in deaths is that it was due to the increase in particulate pollution of the air during the mine fire;

    e. The increase in particulate pollution of the air during the mine fire was most likely due to the mine fire but possibly added to by bushfires that occurred at the same time; and

    f. The mine fire contributed to an increase in deaths in the Latrobe Valley in 2014.

70. Should the Board make these proposed findings, it may also be appropriate for the Board to consider making recommendations for the management of future events where exposure to pollutants such as $PM_{2.5}$ are likely to occur.

TERMS OF REFERENCE 7 & 12

71. The Board is also required to inquire into and report on any other matter that is reasonably incidental to Term of Reference 6 (Term of Reference 12). There are a number of matters which, in our submission, have arisen as reasonably incidental to the Board's inquiry into Term of Reference 6 which warrant findings (including, in some instances, adverse findings) and recommendations.

72. Term of Reference 7 is also relevant to the Board's present task. Pursuant to that Term, the Board is required to inquire into and report on "short, medium and long term

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[98] Evidence of Armstrong, T608.18; Evidence of Gordon, T608.20; evidence of Barnett: T608.22. Dr Flander was not present at this time.

measures to improve the health of the Latrobe Valley communities having regard to any health impacts identified by the Board as being associated with the Hazelwood Coal Mine Fire". Some of the recommendations we submit the Board should make may properly be seen as measures designed to improve the health of the Latrobe Valley communities. This is because implementation of them is likely to increase the communication between government and the local communities thereby increasing trust in future health messages and measures provided by the State. In addition, the proposed recommendations would improve the way in which DHHS manages the investigation of important public health issues in the future, thereby increasing the likelihood of positive health outcomes.

The Roles Played by Voice of the Valley and Associate Professor Barnett Warrants Commendation

73. During the mine fire, community members became concerned about the potential adverse health impacts of the fire. Meetings were held and data was collected in the form of surveys about these effects. That material was submitted to the First Inquiry and formed part of the evidence before it. Those concerns and the perception that the government generally and, in particular the Chief Health Officer at the time, Dr Rosemary Lester, was not paying sufficient regard to the effects of the smoke on health, led to the formation of community group Disaster in the Valley (which later became Voices of the Valley).[99]

74. The Board heard evidence from Ron Ipsen, a Latrobe Valley resident and member of VoV. Mr Ipsen described how around mid-May 2014 he and other members started to hear anecdotal evidence from people concerned that the mine fire had led to an increase in deaths.[100]

75. As a result of their belief that the Department of Health (as it then was) would not itself investigate these concerns, on 27 May 2014, VoV wrote to RBDM to request data which showed the number of deaths for the postcodes of Morwell, Moe, Traralgon and Churchill for January-June 2009-2014 broken up by months. The purpose was to try to establish whether or not the anecdotal information was accurate – i.e. whether or not there was in fact an increase in deaths during and after the mine fire as compared to the previous five years.[101]

76. Unfortunately, RBDM did not provide any data until 4 September 2014 – after the First Inquiry had already completed its report. As a result of that delay, and in demonstration of its commitment and initiative in exploring this important matter, VoV between May and August 2014 themselves undertook the significant task of obtaining, collating and counting death notices from the local Latrobe Valley Express over the 2009-2014 time period to see if that showed an increase in deaths during and after the fire.[102] The results of that analysis were completed by mid-

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[99] HMFI First Report pp 392-394; 402.
[100] T268.30-269.8.
[101] T269.10-13.
[102] T270.28-271.17.

August 2014 and submitted to the First Inquiry. The analysis came too late to be included in the report for that inquiry but the Board forwarded the information to both the Department of Health and to the Coroner for consideration.[103]

77. Upon receipt of the RBDM data in early September 2014, VoV approached the ABC which ran a story on 12 September 2014 with the assistance of Associate Professor Barnett. According to Mr Ipsen, VoV had themselves attempted to contact universities in Victoria for assistance in analysing the data but without luck. Mr Ipsen's perception was that this may have been because local universities were tendering for the long-term health study at the time.[104]

78. Associate Professor Barnett provided his assistance on a *pro bono* basis to the ABC and, later, to VoV (who provided him with additional data they had obtained from RBDM in late 2014/early 2015). He undertook statistical analysis of two sets of data and published on the web two papers detailing the results. This was because he believed "this was something of national interest and a worthy investigation"[105] and because "if people ask me for help from the public I'm paid by public money, I'm very happy to help them with my expertise in any way I can."[106]

79. On each occasion that VoV obtained data from RBDM it had to pay a fee. VoV have confirmed a total of $485 was paid. Mr Ipsen gave evidence that this money was collected by membership and donations and, in the case of the second set of data, almost entirely exhausted the money that the organisation had. [107] As noted below, on each occasion when the Department of Health and Human Services obtained data from RBDM, it paid no such fee.

80. In these circumstances, it is of real significance that Associate Professor Barnett provided VoV with *pro bono* assistance in analysing the second set of data. It is submitted that the Board should commend his endeavours and assistance to a community organisation in need of such assistance.

81. Further, the concern, enterprise and persistence of VoV in investigating and responding to local community concerns is, it is submitted, also worthy of the Board's commendation. Without their efforts, it is unlikely this important issue would be part of the Board's current terms of reference.

The Response of DHHS to this Issue Warrants Adverse Findings and Recommendations

<u>The State is responsible for its employees - including Dr Lester</u>

82. Pursuant to section 17(1)(d) of the *Public Health and Wellbeing Act* 2008 (Vic) ("the PHW Act"), the Secretary to DHHS is tasked with various functions including:

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[103] Exhibit 7.
[104] T280.17-24.
[105] T548.3-6.
[106] T557.16-18.
[107] T276.11-16.

a. Supporting, equipping and empowering communities to address local public health issues and needs (s.17(2)(d)); and

b. Appointing a Chief Health Officer (s.20(1)) who remains subject to the direction and control of the Secretary (s.20(2)) and whose functions include developing strategies to promote and protect public health and wellbeing; and providing advice to the Minister or Secretary on matters relating to public health and wellbeing (s.21(a)-(b)).

83. The PHW Act sets out a number of principles which guide the manner in which the Secretary and Chief Health Officer should administer their functions under the Act (s.4(3)). They include the principles of:

a. Collaboration – including with communities and individuals (s.10);

b. Evidence based decision-making – decisions should be based on relevant and reliable evidence (s.5); and

c. Accountability – "persons who are engaged in the administration of this Act should as far as is practicable ensure that decisions are transparent, systematic and appropriate" and "members of the public should therefore be given access to reliable information in appropriate forms to facilitate a good understanding of health issues" (s.8).

84. DHHS was, pursuant to its statutory functions, the appropriate government department to respond to the community concerns about whether or not the mine fire contributed to an increase in deaths. Dr Rosemary Lester and colleagues such as Dr Neil and Dr Csutoros who took over relevant functions from her after she retired in February 2015, were employees of DHHS and, therefore, of the State. It is the State which was ultimately responsible for Dr Lester's conduct and decision-making in respect of this issue and for that of her colleagues. The following submissions are to be viewed from within this framework.

Failure to communicate and engage

85. DHHS was made aware of the community concerns regarding increases in deaths by 17 August 2014 at the latest when RBDM wrote to DHHS to inform it of the request that VoV had made for data and to inquire whether it would be appropriate for the VoV request to be dealt with by the Department instead. Dr Lester responded to RBDM by noting that "your decision on his request is obviously yours; if you refer him to us my response will be that there has been an independent inquiry into the fire, and we have nothing further to add. Obviously his "research" is up to him."[108] Linda Cristine who gave evidence on behalf of DHHS was unable to say why DHHS declined to engage with VoV after RBDM contacted it.[109]

86. DHHS was forwarded the results of the death notices count by the First Inquiry

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[108] Emails of 17-19 August 2014 (to be tendered). See also T287.24-31.
[109] T324.27-325.10.

Board on 22 August 2014 and on 3 September 2014 was provided, free of charge, with the data requested by VoV.[110] Soon after, it was approached by the ABC for comment on the story that was run on 12 September 2014 for which Associate Professor Barnett was first engaged. The concerns of VoV were, without doubt, known by DHHS by this time.

87. There does not appear to be evidence of any direct engagement by DHHS with VoV regarding their concerns. Indeed, Mr Ipsen gave evidence there was none.[111] At the hearing Senior Counsel for the State provided a bundle of documents which outlined the interaction between government and VoV.[112] The majority showed contact from the Premier's office to VoV. Those that did originate from DHHS simply referred VoV to the DHHS website and/or the long-term health study. There was nothing to evidence consultation and engagement with VoV. Senior Counsel for the State referred not to meetings and phone calls but to community consultations about the long-term health study, reopening of the inquiry and future recruitment of a community engagement officer for DHHS.[113] These measures are, it is submitted, not demonstrative of any meaningful engagement between DHHS and the community about the issue of whether the mine fire contributed to an increase in deaths.

88. It is submitted that from 17 August 2014 up until now there appears to have been no real application by DHHS of the functions and guiding principles required by the PHW Act as they relate to community collaboration and engagement on this issue. This deficiency is both surprising and unfortunate starting, as it did, only weeks after the First Inquiry released a report identifying significant deficiencies in DHHS' communication and engagement with the Latrobe Valley communities during the fire.[114] The State at that time undertook to "improve local engagement on health issues."[115] This commitment was affirmed by the Board.

89. The response to the concerns raised by VoV rather than being consultative and demonstrating engagement with the Latrobe Valley community, was, it is submitted, handled in an inappropriate manner which has ultimately exacerbated the mistrust felt by the community towards DHHS. This process was, at least initially, driven by the then Chief Health Officer, Dr Rosemary Lester but was continued after Dr Lester retired in February 2015. Ms Cristine acknowledged in her evidence that "community consultation engagement can be improved and should be improved."[116]

<u>Dr Lester should not have been permitted to investigate the issue</u>

90. Upon becoming aware that VoV were concerned the mine fire had contributed to an

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[110] T288.11-14.
[111] T279.4-280.5
[112] Exhibit 7.
[113] T384.
[114] P.402.
[115] HMFI First Report p.35.
[116] T384.3-5.

increase in deaths, Dr Lester personally assumed control of DHHS' investigation of and response to the issue. She maintained this control up until her retirement in February 2015. Dr Lester's role included analysing the RBDM data and drafting fact sheets,[117] briefing the Secretary and reviewing at least one media release, personally sourcing and briefing a consultant to provide opinions on the data and on Associate Professor Barnett's work,[118] and providing comments on drafts of that work.

91. Dr Lester assumed this role despite the controversy surrounding her conduct during the mine fire itself. Indeed, Dr Lester was the subject of criticism and adverse findings by the Board of the First Inquiry – particularly regarding the timing of the evacuation warning during the fire.[119] In these circumstances, Dr Lester showed poor judgment in deciding to take charge of the investigation of this issue of whether or not the fire contributed to an increase in deaths. It ought to have been clear that the community would have difficulty accepting the results of an investigation managed by her.

92. It is further submitted that Dr Lester's investigation gave rise to a conflict of interest. Had the result of such an investigation been an acceptance that there was in fact an increase in deaths, that finding would have reflected poorly upon Dr Lester personally in light of her role during the fire (and resulting criticism of it). This ought to have been plain both to Dr Lester and to those more senior to her within DHHS. She should not have been permitted to assume carriage of the matter in such circumstances.

93. There were other options open. Indeed, after she retired in February 2015, Dr Lester's acting replacement in the role of Chief Health Officer, Dr Michael Ackland, did not take over management of the investigation – that rested back in the health protection branch with Dr Andrew Neil and with a senior medical advisor in the office of the Chief Health Officer, Dr Csutoros.[120]

94. Dr Lester, in evidence, was unable to identify why she personally headed the investigation other than to say she did not see any conflict of interest in taking personal charge[121] and felt she needed to because it was an issue of such "significance and importance to the people of the Latrobe Valley."[122] It is submitted that the concern in the community acknowledged by Dr Lester is the very reason that the DHHS response to the issue should have been overseen by someone with no vested interest in the outcome.

<u>DHHS 'factsheets' were unbalanced and misleading</u>

95. Soon after assuming personal control of DHHS' response to VoV's concerns, Dr Lester formed the opinion that the fire had not contributed to an increase in deaths.

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[117] T393.25-27.
[118] T399.26-7.
[119] P.355-6.
[120] T306.17-26.
[121] T400.5.
[122] T400.24-28.

This position was adopted prior to any independent expert analysis of the data. It became the public position of DHHS by 12 September 2014 when the ABC program was aired.[123] It was also apparently the position of the then government.[124]

96. Shortly after the issue of Latrobe Valley death rates and their possible connection with the mine fire was raised with the Department of Health in September 2014, the Department published on its website three 'factsheets' about the issue.[125] Each of the factsheets emphasised the 19% decrease in deaths in Morwell in February-March 2014 compared to the average for the same period in 2009-2013. In relation to the significant increases in deaths in Traralgon and Moe in the same periods, the facts sheets did not comparethem to the average in previous years but merely drew the reader's attention to selected years with death rates that were similar to 2014.

97. As Professor Gordon, who had been asked to review the factsheets, observed, the documents "lack an appropriate level of objectivity, as they focus on particular elements of the data and appear to be arguing persuasively towards a particular conclusion, namely, that the mine fire did not cause any excess deaths."[126] He fairly accused the Department of Health of "selective reporting".[127]

98. It is submitted that the fact sheets did not live up to either:

    a. their own claim to provide "accurate and clear information" that will be "well understood"; or

    b. the requirements of section 8(2)(b) of the *Public Health and Wellbeing Act* 2008 (Vic.) which states that members of the public should be given "access to reliable information in appropriate forms to facilitate a good understanding of public health issues".

99. Dr Lester has maintained her position that the mire fire did not contribute to an increase in deaths. During the hearing, she emphasised, as was emphasised in DHHS media briefings[128] and the factsheets prepared in 2014, that during the period of the fire there was a 19% decrease in the number of deaths in Morwell as compared to the average for the previous five years.[129]

100. Dr Lester, however, made a number of concessions in her evidence regarding the limitations of this particular figure which were not acknowledged in any of the public statements made while she was Chief Health Officer. These include that people who reside elsewhere in the Latrobe Valley, such as Moe where there was a significant increase in number of deaths, could have been working in Morwell at the time of the fire[130] and that people residing in Morwell may have relocated during the fire

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123 Attachment 1 to Cristine Statement (Exhibit 3).
124 On 12 September 2014, on the ABC's *7.30* Report, Deputy Premier Ryan said "There have not been deaths and no indication of such."
125 The factsheets, dated 17 September 2014, September 2014 and 22 October 2014 are Attachments 2, 3 and 4 respectively to Exhibit 3.
126 Exhibit 29, [30].
127 Exhibit 29, [31].
128 Dr Lester agreed she had likely had input into the brief to the ABC on 12 September 2014 (T392.17-22) and had provided information to her Minister who may have briefed Deputy Premier Ryan in advance of his public statement to that program (T401.16-31).
129 T414.
130 T419.22-28

resulting in a reduced population.[131] These were facts known to her at the time she was involved in drafting the factsheets and reviewing media briefings.

101. Furthermore, the initial report provided by the Melbourne School of Population & Global Health at the University of Melbourne highlighted the uncertainties surrounding this (and other) figures.[132] Dr Lester had this report for almost a month before the release of the final 'factsheet' which continued to emphasise the 19% figure.

102. In these circumstances, the continued emphasis on the Morwell figure without reference to the limitations of that figure was misleading. This was particularly so when combined with the failure of those 'factsheets' to give equal prominence or statistical treatment to other data which tended to confirm an increase in deaths. Put simply, the statement contained in the 'factsheet' dated 17 September 2014 that "it is important that any information provided is accurate and well understood" was not adhered to in that and later documents. The guiding principle of accountability in the PHW Act (set out above at [83]) was not followed.

<u>DHHS' engagement and management of Dr Flander & her colleagues lacked rigour and independence</u>

103. We noted earlier in these submissions that the Melbourne School of Population & Global Health from the University of Melbourne was engaged by the Department of Health in September 2014 to provide independent expert advice on the contentious issue of mortality rates in Latrobe Valley. The University ultimately provide three reports to the Department. As the final fact sheet dated 22 October 2014 clearly demonstrates, the Department wanted to demonstrate to the public that it had obtained such independent advice and that the advice supported its position that there was no link between the increase in deaths and the mine fire.[133]

104. However, the evidence before the Inquiry raises question about the true degree of independence of the University in carrying out this work. Each of the three reports provided to the Department went through several drafts:

    a. The first report of 26 September 2014 (Exhibit 21) went through at least three drafts;[134]

    b. The second report of 28 April 2015 (Exhibit 22) went through at least two drafts;[135] and

    c. The third report of 4 June 2015 (Exhibit 23) went through at least three drafts.[136]

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[131] T.429.16-23
[132] T430-431.
[133] See, for example, the reference to "the Melbourne University analysis" in Attachment 4 to Exhibit 3.
[134] Dated 19 September 2014 and two dated 23 September 2014 (Exhibits 18, 19 and 20 respectively).
[135] Drafts dated 13 March 2015 [DHHS.1008.001.0504] and 9 April 2015 [DHHS.1008.001.0508] (Exhibit 16).
[136] Dated 22 May 2015, 30 May 2015 and 31 May 2015 (Exhibit 13).

105. The extensive comments on the drafts provided by departmental officers to Dr Flander addressed matters of substance and led to substantial changes to the drafts. Two examples of this will suffice.

106. In mid-September 2014, Dr Lester asked Professor Terry Nolan from the University of Melbourne, who she had professionally known for a number of years,[137] if he could provide a "quick" review of the RBDM data and of Associate Professor Barnett's work. Professor Nolan gave the task to colleagues: Dr Louisa Flander and Professor Dallas English. Dr Flander assumed primary carriage of the task.

107. Despite realising the significance of this issue to the local community, Dr Lester conceded in evidence that she did not make any inquiry of Dr Flander's background or her capacity to fulfil her duties of the project.[138] Dr Flander was, in fact, lacking in experience. She had never previously done this type of consultancy.[139] Further, she is not a statistician and the work that she was asked to do was essentially a statistical study.[140] We submit that not being a biostatistician herself, Dr Flander was an inappropriate choice to review the work of Associate Professor Barnett as she herself conceded in her evidence to the Board.[141]

108. Furthermore, after having undertaken an analysis of the data and provided an opinion on it in September 2014, Dr Flander became an inappropriate choice of expert to review Associate Professor Barnett's work. Had DHHS desired a review of Associate Professor Barnett's work, it ought to have sent it (and Dr Flander's analysis) to a third party who had not already formed an opinion about what the data showed.

109. In addition, although in her evidence to the Board, Dr Lester accepted that it was important that the University of Melbourne be engaged as completely independent from DHHS,[142] we submit that this was not borne out by the approach undertaken by Dr Lester and those who took over management of this consultancy after her retirement.

110. Dr Lester's position that the data did not show an increase in deaths was communicated to Dr Flander at various stages including in the Project Brief[143] and in email responses to the draft reports she received.[144]

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137 T403.5-14.
138 T406.18-21.
139 T436.15-17.
140 T436.7-8.
141 T448.17-28.
142 T405.25-29.
143 There was a prominent quote in the brief (Attachment 5A to Exhibit 3) from the RHRA without detailing any of the limitations to the analysis in the RHRA which Dr Lester accepted she understood at the time she received the RHRA: T429.6-7.
144 For example, after receiving a draft report from Dr Flander (Exhibit 18) in an email dated 23 September 2014 [DHHS.1008.001.0049], Dr Lester wrote to Dr Flander "One of the things which gives us comfort that this is nothing more than random variation is that the increase was greatest in the Moe postcode which is 13km away from the fire". Dr Lester was unable to explain to the Inquiry why it was necessary to state her position about the data to Dr Flander at all if what wanted was an objective analysis of the data. She concluded she did not know why she included this comment: T419:13-16.

111. As noted above, after Dr Lester retired, conduct of this investigation was taken over by Dr Neil and Dr Csutoros. The latter was the point of contact with the University of Melbourne. Extensive commentary on drafts continued to be provided to Dr Flander including, it is submitted, comments which invited Dr Flander to draw a different and more critical conclusion regarding the validity of Associate Professor Barnett's work.

112. The second example concerns Dr Flander's critical appraisal of the work of Associate Professor Barnett. After submitting a draft report dated 13 March 2015 to the Department, Dr Flander received two pages of comments attached to an email dated 27 March 2015 from Dr Danny Csutoros.[145] The comments numbered '2' and '6' requested that substantive changes be made to the draft:

    a. Comment 2 included "Alternatively, is it possible that the **conclusion** could be drawn **instead** that the data presented do not suggest strong evidence for the author's hypothesis that the fire had an effect on mortality".[146]

    b. Comment 6 made reference to "our interpretation" of the data and pointed out the Associate Professor's conclusion about the fire having caused an increase in deaths "needs to be challenged more directly".[147]

113. The next draft of this report was dated 9 April 2015.[148] As foreshadowed in her email dated 27 March 2015,[149] Dr Flander incorporated all of the comments that had been sent to her. For example, the suggestion that the phrase 'plausible hypothesis' "really means" 'supposition worthy of investigation' was accepted by the re-wording of that part of the report in precisely the suggested manner.

114. We note that Dr Flander agreed that the Department had on more than one occasion communicated its view to her about how the mortality data should be interpreted.[150] However, she denied that she had adopted the suggestions without sufficient reflection. Dr Flander told the Inquiry that what she meant in the email was that she would take on Board all of the suggestions and consider them.[151] Dr Flander maintained that her work was independent of the Department and was not a collaborative piece of work.[152]

115. Linda Cristine gave evidence to the Board on behalf of DHHS. She was asked about the appropriateness of Dr Csutoros' suggestions to a purported independent expert. She stated that, "there is no rule book for us as public servants in providing feedback

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[145] The email is part of Exhibit 16 – DHHS.1008.001.0066
[146] Our emphasis.
[147] The comments are at DHHS.1008.001.0062-0063 (Exhibit 16).
[148] [DHHS.1008.001.0508] (Exhibit 16).
[149] Within 38 minutes of receiving the email from Dr Csutoros, Dr Flander wrote 'Hi Danny. Many thanks for these useful comments. We will incorporate all the suggestions and return the report to you by Wednesday': DHHS.1008.001.0065 (Exhibit 16). The reply by Dr Csutoros – 'For the record, they are comments given to prompt discussions and thinking and we will leave final judgement of inclusion completely to yourself' appears to suggest a degree of surprise by Dr Csutoros that Dr Flander had replied so promptly in those terms.
[150] T439.13-26.
[151] T446.19-27.
[152] T448.3-16.

to consultants."[153]

116. It is significant that in the three reports provided to the Department by the University of Melbourne, there is no disclosure of the changes that were made to earlier drafts in response to comments made by Department officers. It is well accepted practice that an independent expert who changes her or his opinion on a material matter should disclose, in a supplementary report, the nature of the changes made.[154]

117. We submit that the nature and number of the emails between Dr Flander and Dr Lester (and colleagues after her retirement) that were provided to the Board demonstrate, at best, the final reports from the University of Melbourne were more akin to collaborative rather than independent documents.

118. We have addressed the evidence concerning the manner in which the DHHS responded to the concerns of the community generally and VOV in particular at some length. This is because we submit that the evidence raises some serious questions about the conduct of the Department and its officers and whether that conduct was consistent with the statutory principles that guide their work and was otherwise appropriate in all of the circumstances. The evidence in these public hearings needs to be understood in the context of the findings of the First Inquiry's report that the conduct of DHHS officials during the fire itself had left some Latrobe Valley residents more distrustful of government agencies and services than they previously were.[155]

119. In the next section of these submissions we outline the findings about the conduct of the Department that we submit should be made by the Board and the recommendations we submit flow from those findings. These, it is submitted, are required to improve the relationship between DHHS and the Latrobe Valley communities and thus contribute to a collaborative approach to the future health needs of the Latrobe Valley.

Proposed Findings

120. The Board should, it is submitted, make the following findings:

    a. DHHS did not communicate or engage with VoV regarding community concerns that the mine fire had contributed to an increase in deaths;

    b. It was a conflict of interest for Dr Lester personally to investigate claims by VoV and then manage subsequent expert investigations into its concerns;

    c. The process by which the Melbourne School of Population & Global Health at the University of Melbourne was selected to undertake the data analysis was unclear and lacking in rigour;

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153 T304.17-19.
154 Supreme Court of Victoria, Expert Witness Code of Conduct [4].
155 HMFI First Report p.352.

d. The three reports prepared by the Melbourne School of Population & Global Health at the University of Melbourne were not independent from DHHS;

e. The 'factsheets' published by DHHS in September and October 2014 were incomplete, misleading and unbalanced and failed to acknowledge any uncertainties concerning the mortality data;

f. It was inappropriate to choose the same consultant to undertake the mortality analysis and then subsequently peer review an analysis by another expert.

Proposed Recommendations

121. In these circumstances, it is submitted that the Board ought make the following recommendations:

a. The State should review as a matter of urgency how its 2014 commitment to improving community engagement in health will be implemented, regularly monitored and evaluated;

b. The State should ensure that the HMFI Monitor (Neil Comrie) gives this special attention with quarterly progress reports provided to the Premier;

c. The State should establish a more rigorous process for the investigation and consideration of matters of public health concern including the selection and management of independent experts;

d. Consultants engaged by the State should make a declaration in their reports about any comments and suggestions made by Departmental officials and what their response has been; and

e. The State should establish an internal rapid review process for reviewing and updating public statements concerning the health status of the population to ensure balanced, unbiased and understandable information is provided which allows the community to come to an informed view.

Further Investigation

122. The Board is required to report on Terms of Reference 6 and 7 (and any other matter that is reasonably incidental to them) by 2 December 2015. Based on the evidence at these public hearings, we submit that there are two matters of potential relevance to the Board's findings and recommendations which require further investigation:

a. the completeness of the RBDM data relied on by the experts; and

b. the appropriateness of the present scope of the long-term health study excluding emergency responders.

<u>RBDM data</u>

123. The Board heard evidence from Dawn Sims from RBDM regarding the data provided to VoV, DHHS and the Board. This data only included deaths which were registered in the RBDM system as "complete" on the date the data set was extracted. A registration is not "complete" if there is some outstanding piece of information required, such as when the Coroner has yet to determine cause of death.[156] Completion can take some time.

124. It is possible, therefore, that the data set used by the experts who gave evidence to the Board did not reflect all deaths from the relevant postcodes. There could be some additional deaths to add to the 2014 figures and, though less likely, to previous years.[157]

125. RBDM has been requested to provide information to the Board regarding any additional deaths by 14 October 2015 at the latest. It is the intention of Counsel Assisting that upon receipt of that data, an assessment will be made about whether or not that information should be provided to the experts. In the event that any change of views occurs, all parties involved in this matter will be notified.

The scope of the long-term health study

126. Professor Abramson gave evidence regarding the current scope of the long-term health study. Presently, the Adult Survey component of the study will only consider residents of Morwell and health impacts observed from late 2015 onwards. The Adult Survey will be used to consider the impact of the mine fire on respiratory and cardiovascular functions and be linked to the National Death Data Index in the future. It is the part likely to provide, at some stage beyond the conclusion of this Inquiry, further answers to the question as to whether the mine fire contributed to an increase in deaths.

127. The range of people who were exposed to the mine fire extends beyond those who resided in Morwell at the time. In particular, people who worked in Morwell during the fire including emergency responders to the fire were potentially heavily exposed.

128. Professor Abramson gave evidence that it would be possible to include these persons in the study[158] and that he and his colleagues are "seriously interested"[159] in such an inclusion as the information obtained would be "extremely valuable".[160] At least some emergency responders have indicated an interest in participating.[161]

129. Ms Cristine gave evidence that firefighters and other emergency responders have their own programs and studies which are monitoring the health impacts of the fire[162] - however, there is no details of this before the Board. Ms Cristine said DHHS considered there to be significant methodological issues in including non-resident emergency responders in the

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156 T282.18-25.
157 T295.10-25.
158 T340.31-341.2; T341.18-342.5.
159 T341.2-13.
160 T342.13-27.
161 T341.2-13.
162 T319.26-31.

study[163] but she did not know if there had been any discussions with Monash University about whether any such difficulties could be overcome.[164]

130. Investigations will be made on behalf of the Board regarding the scope of any such studies and whether their existence lessens any need for such persons to be included in the long-term health study.

131. Questions have also arisen regarding the following:

a. whether it would be possible for the long-term health study to be expanded so that it considers death data during the fire and in the period leading up to the start of the Adult Survey in late 2015;[165]
b. whether other parts of the Latrobe Valley ought to be included in the Adult Survey – particularly in light of, for example, comparable $PM_{2.5}$ levels in Traralgon as compared to Morwell East;
c. the adequacy of the current duration of the study and contractual arrangements for options and extensions;
d. the level of independence the study has from DHHS; and
e. the level of community engagement and ownership of the study.

132. Further investigations will be undertaken on these issues. The public forums set to run at the end of this month are likely to explore at least some of them.

133. It may be that additional findings and recommendations are proposed at the conclusion of this investigation. One potential recommendation may be that the State should undertake, with the support of independent experts, a review of the terms of reference of the long-term health study addressing these two scope issues. Parties will be notified if that is contemplated by the Board.

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R. Shann

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8 September 2015

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[163] T320.19-30.
[164] T321.10-12.
[165] T379.7-9.