**H****AZELWOOD MINE FIRE INQUIRY**

**SUBMISSIONS OF COUNSEL ASSISTING**

1. **ORIGINS OF AND RESPONSE TO THE FIRES**
	1. **Findings**
		1. From Monday 3 February 2014 the State Control Centre fire weather briefing forecast that Sunday 9 February 2014 would be a critical fire weather day. By Friday 7 February 2014 the forecast had firmed to a weekend expected to be critical for fire weather, with very hot conditions across the State on Saturday, little relief overnight with temperatures remaining in the mind-high 20s, and then northerly winds strengthening ahead of a strong and gusty southwesterly wind change Sunday morning and afternoon.
		2. With the forecast conditions for the Sunday being the worst since Black Saturday in 2009, on the morning of Friday 7 February 2014 the Chief Officer of the CFA declared both Saturday 8 February and Sunday 9 February 2014 to be days of Total Fire Ban.
		3. A fire started at Hernes Oak to the north west of Morwell on the afternoon of 7 February 2014. The fire was first reported at 15:18 hours and was designated the Hernes Oak-McDonalds Track fire. Although a CFA investigator concluded that the Hernes Oak fire was caused by inadequate control of a camp fire, Victoria Police regard the fire as suspicious and it is the subject of an ongoing police investigation. Police have excluded lightning strike and power asset failure as causes of the Hernes Oak fire.
		4. From 8 February 2014 the Hernes Oak fire was managed by the Traralgon Incident Control Centre, a Level 3 ICC. By that morning the Hernes Oak fire was “contained” – i.e. it had a secure perimeter but was burning internally. In view of the weather forecast for the following day, Incident Controller Laurence Jeremiah applied an aggressive strategy to the fire. By the evening of 8 February 2014 the Hernes Oak fire was contained but still burning.
		5. During the Saturday the Incident Management Team for the Hernes Oak fire discussed the possibility that the fire might spread to the Yallourn and Hazelwood open cut mines. The IMT’s Planning Officer, Peter McHugh, provided at least one Phoenix prediction map to Nick Demetrios, the Chair of the Central Gippsland Essential Industries Groups (**CGEIG**). At 16:29 on the Saturday afternoon, Mr Demetrios forwarded one Phoenix prediction map to Alan Roach, the Security and Emergency Services Manager at Hazelwood. That map showed the fire spreading into the northern batters of the Hazelwood Mine by 02:00 on Monday 10 February 2014.
		6. The weather conditions on Sunday 9 February 2014 were as forecast. By 10:00 the temperature at the Latrobe Valley AWS was 37.7 degrees, with a north-westerly wind averaging 37 km/h, gusting to 76 km/h. By 13:00 the temperature was 40 degrees, the wind had moved slightly to the west and was still averaging 37 km/h, with gusts to 57 km/h. A strong south-westerly wind change reached Morwell at approximately 13:40. The south-westerly wind blew strongly all afternoon, with average speeds between 40 km/h and 55 km/h and gusts as high as 77 km/h, until it began to abate from 20:00.
		7. At about 10:45 on Sunday 9 February a fire broke out at Jack River near Yarram. This fire was also managed by the Traralgon ICC. Significant firefighting resources were required to suppress this fire that spread to cover 1800 hectares by the end of the day.
		8. At about 13:15 the Hernes Oak fire broke its containment lines in the north-eastern corner of the fire, rather than in the south-eastern corner as had been feared. It moved very quickly in a south-easterly direction towards Morwell and the Hazelwood Mine. It was moving so quickly that it was unsafe for firefighters to directly attack the head of the fire. After the wind change the Hernes Oak fire moved towards the western side of Morwell and spotted over towards Maryvale, where fire threatened the APM mill.
		9. At about 13:30 another fire ignited at several points near Driffield on the Strzelecki Highway. Police believe this fire to have been deliberately lit. It is the subject of an ongoing police investigation. Police have excluded lightning strike and power asset failure as causes of the Driffield fire.
		10. Under the influence of the strong south-westerly wind, the Driffield fire moved rapidly in a north-easterly direction towards the Hazelwood Mine. The fire front did not pass the Morwell River Diversion, although James Mauger saw burnt embers from the Driffield fire blowing over his head into the open cut of the Mine.
		11. Fire was first observed in the Mine at around 14:00. James Mauger saw smoke in the south-eastern batters at about 13:55, and on level 5 of the northern batters at 14:30. At 14:17 David Shanahan observed a fire on the floor of the Mine, in the overburden dump area, and a small fire in the northern batters. By 14:55 the fire in the northern batters had spread from level 5 to level 3 and possibly to level 1. The fires in the south-eastern batters and on the floor of the Mine grew during the course of the day and later merged to become one fire.
		12. The fires in the Hazelwood Mine fire started in the worked out area of the mine, ignited by ember throw from the Hernes Oak fire and possibly also from the Driffield fire. There is no evidence that the fires started from internal sources. Notably, the fire in the northern batters started about 300 metres to the west of the clay capped firehole known as “Old Faithful”. This conclusion is based on the accounts of Mine personnel, in particular Mr Shanahan and Mr Mauger, and is supported by the Phoenix simulation of fire spread.
		13. Fire did not establish in the West Field of the Mine on 9 February 2014. There was a small fire in the West Field during the morning, caused by a mechanical fault on idler M680, which was extinguished. Hazelwood personnel who patrolled the mine did not see any fire in the West Field between 13:45 and 15:00, although there is a second hand report of spot fires in the West Field later between around 15:30 and 16:15. Any fire in the West Field was quickly extinguished and was not among the fires still burning the following day.
		14. At 14:52 Steve Harkins declared a “full blown emergency” under the Hazelwood Emergency Response Plan. Romeo Prezioso assumed the role of Emergency Commander and established an Emergency Control Centre at about 15:20.
		15. The Mine’s firefighting resources were initially concentrated on the western perimeter of the Mine, in anticipation of the Driffield fire crossing the Morwell River Diversion. Mine personnel reached both the fire in the south-eastern batters and the fire in the northern batters at an early stage but were unable to contain either of them.
		16. After Mr Prezioso assumed command he maintained people at western end of the Mine, monitoring and dealing with spot fires from the Driffield fire. He directed a crane monitor to the south-eastern batters in an attempt to stop that fire spreading around the corner to the west. Between 16:15 and 16:40 David Shanahan turned on sprays on the northern batters to establish a water break between the fire and the operating face of the Mine.
		17. By about 14:30 the Traralgon ICC was working on the basis that there was fire in the Mine. Mr Roach contacted Mr McHugh, the Planning Officer at the Traralgon ICC, directly at 14:43 and told him that there was fire spotting inside the open cut. The fire services’ resources were heavily committed to the Jack River fire, to the Hernes Oak fire that was threatening western Morwell and the APM mill at Maryvale, and to the Driffield fire. The only resources deployed to the Mine during the afternoon of 9 February were a helicopter and a fixed wing plane that dropped water and retardant between 14:55 and 15:20.
		18. Between 18:00 and 19:00, fire ran out of the eastern batters and caused a grass fire between the mine and Energy Brix. The fire damaged the M690 conveyor and an Energy Brix conveyor. A CFA strike team arrived to combat the Energy Brix fire at about 18:45. The CFA strike team was redeployed to the Mine and were the first crews to attend the Mine. Another strike team had arrived earlier in the afternoon, but left before being deployed inside the Mine. Later that night Ross Male of the Morwell CFA arrived with another strike team.
		19. At some stage between 17:00 and 19:00 the Mine lost power. The fire had burned some of the poles for the two separate SP Ausnet 66 KV power lines that run down the northern batters and supply the Mine’s power from the external grid. There was no backup power supply within the Mine. Without power, the pumps that pressurise the Mine’s fire service water system could not operate. The ECC was without power, even after it moved from the Mine Training Centre to a meeting room in the Mine Administration building. The loss of power also meant that coal could not be mined or conveyed to the power station. Power was restored in the early hours of the morning of 10 February 2014.
		20. No effort was made to suppress the growing fires in the northern and south-eastern and eastern batters that night. The conditions were dangerous – the fires were large, there was a lot of smoke, visibility was poor and there were fallen power lines. In addition the loss of power reduced the flow in the fire service water system to a trickle at best. The available resources were used to protect assets around the perimeter of the Mine, on top of the northern and eastern batters.
		21. The CFA formally took control of the fire at about 20:00, and Peter Lockwood of the CFA became the Division Commander. A handwritten incident action plan prepared in the early hours of 10 February 2014 summarised the situation at daybreak.
		22. Steven Warrington, a Deputy Chief Officer of the CFA, was appointed Deputy Regional Controller for the Mine fire on 10 February 2014.
		23. A separate incident management team was formally established for the Mine fire from the commencement of day shift on 11 February 2014. The Hazelwood IMT was initially based at the Mine, but moved to the well resourced Traralgon ICC on16 February 2014.
		24. The Incident Controllers for the Mine fire were as follows:
			1. Laurence Jeremiah, DEPI, 9-10 February – as Incident Controller for the Hernes Oak-Morwell fire;
			2. Peter Lockwood, CFA, 11-12 February;
			3. Barry Foss, CFA, 13 February, 18-20 February;
			4. Nick Brown, CFA, 14-17 February;
			5. Robert Barry, CFA, 21 February, 22-26 February, 2-6 March, 10-14 March, 18-22 March;
			6. John Haynes, CFA, 26 February-1 March, 6-9 March, 14-17 March; and
			7. Ross Sullivan, CFA, 22-25 March.
		25. The suppression strategy during the first week of the fire focused on containment of the fire. Successive State Strategic Support Team briefs from 12 to 20 February identify the following incident control strategies:
			1. contain fire spread to minimize impacts on mine critical infrastructure and critical coal supplies;
			2. prevent fire from spreading to critical coal supplies;
			3. prevent perimeter fires from impacting on mine critical infrastructure and coal supplies;
			4. suppress/extinguish fire;
			5. monitor and advise community on smoke impacts.
		26. The State Controller applied a Hazmat overlay to the fire on Thursday 13 February 2014, due to the emission of carbon monoxide from the fire and its implications for firefighter and community safety.
		27. The Latrobe Valley Coal Mine Hazmat/Fire Plan was developed and adopted on 20 February. The suppression strategy adopted from this point was described in detail by Incident Controller Barry:
			1. Step 1 – segment the burning batters into 100 metre compartments on each level of the batters and extinguish the fire in one area at a time using water applied by various appliances, including aircraft;
			2. Step 2 – apply compressed air foam (CAFS) to stop the batter from reigniting while crews moved to another section of the Mine;
			3. Step 3 – deploy aerial pumpers to apply CAFS to the higher reaches of the batters;
			4. Step 4 – use thermal imaging cameras to determine whether steps 1 to 3 had been effective and to identify any remaining “hot spots”;
			5. Step 5 – suppress any “hot spots” identified by thermal imaging cameras;
			6. Step 6 – test other methods of suppression that could be incorporated to improve steps 1 to 5, for example foam lances and spikes.
		28. Performance monitoring was implemented so that the IMT and firefighters could see the progress they were making in “eating the elephant”.
		29. Sikorsky helicopters were effective in suppressing the fire, in particular because they could use water from within the Mine and could deliver it to inaccessible parts of the fire.
		30. During the 45 days of the firefight there were several “spike” days of high fire weather, on which hot and windy conditions heightened the danger of the fire spreading out of the open cut. The IMT planned for these days and additional resources were on hand to bring any outbreaks of fire quickly under control. On 25 February fire spread from the south-eastern batters directly towards the power station and the coal bunker. This fire was suppressed rapidly by the additional resources that were in place.
		31. Mine personnel worked side by side with the fire services personnel to suppress the fire. The efforts of Mine personnel included laying additional pipes to extend the reticulated fire services water system. As the firefight went on information was shared at regular meetings between Mine and fire services personnel at 6 am, 12 noon and 6 pm. In addition, Rob Dugan, the Mine’s Emergency Commander from 11 February 2014, attended a meeting with the IMT at the Traralgon ICC at 1.30 pm each day from 21 February. Fire services and Mine personnel maintained separate incident management structures throughout the fire.
		32. The fire was declared “controlled” on 10 March 2014 – i.e. the fire is no longer spreading and sufficient resources are on hand to prevent spreading.
		33. The fire was declared “safe” on 25 March 2014 – i.e. the fire is out and there is no fire that will create smoke, ash or flames that will impact on the community. There remain small pockets of heat in the floor of the Mine that may flare up from time to time.
	2. **Commendations**
		1. The fire services were generally well prepared for the extreme fire weather conditions on 9 February 2014. The Traralgon ICC was established with a Level 3 Incident Controller and almost a full complement of personnel.
		2. The CFA and Mine personnel responded quickly to the Driffield fire, with sufficient resources to prevent the fire from crossing the Morwell River Diversion and entering the operational area of the Mine.
		3. Mine personnel successfully prevented the fires in the south-eastern and northern batters from spreading to the west towards the operational face of the Mine and important mine infrastructure.
		4. The CFA responded effectively to the breakout of the Hernes Oak fire that threatened western Morwell and caused the fire that threatened the APM mill at Maryvale. No lives were lost and no properties were lost in Morwell. The allocation of resources by the Traralgon IMT was consistent with the State Controller’s Intent that prioritises the protection and preservation of life over the protection of critical infrastructure and community assets.
		5. Mine personnel worked hard and in difficult conditions to re-establish power supply to the Mine by the early hours of Monday 10 February 2014.
		6. GDF Suez maintained power generation at the Hazelwood power station throughout the fire.
		7. An effective suppression strategy was developed to extinguish a huge fire with an unlimited supply of fuel. It is a credit to those who developed and implemented this strategy that the fire was controlled as soon as it was.
		8. The IMT’s careful planning for forecast “spike” days, in particular 25 February 2014, prevented the fire spreading from the open cut into critical infrastructure including the coal bunker and the power station.
	3. **Criticisms**
		1. Some resources requested by Incident Controller Jeremiah on the afternoon of 8 February, in anticipation of the extreme fire weather conditions on 9 February, were not made available when requested. In particular, the additional aircraft requested on the afternoon of 8 February did not arrive in the Latrobe Valley until around noon on 9 February, and were not available to suppress the Hernes Oak fire during the evening of 8 February and the morning of 9 February.[[1]](#footnote-1)
		2. No base IMT was in place at Yarram, contrary to Joint Standard Operating Procedure J2.03 – Incident Management Teams – Readiness Arrangements. The Jack River fire would have been managed from the Yarram ICC had an IMT been in place there, and the Traralgon ICC would have been better able to concentrate its efforts on the Hernes Oak and Driffield fires that threatened Morwell and the Hazelwood Mine.[[2]](#footnote-2)
		3. Mine personnel did not sufficiently apprehend the grave risk posed to the Mine by the Hernes Oak fire and the extreme fire weather conditions forecast for 9 February 2014. Instead of planning for the worst, Mine management hoped for the best. The Mine Fire Preparedness and Mitigation Plans were not updated to refer to the Hernes Oak fire that had ignited on the Friday afternoon.[[3]](#footnote-3)
		4. Despite receiving a Phoenix prediction map that indicated the potential for fire in the northern batters of the Mine by the early hours of 10 February 2014, Mr Roach did not pass this information on to Mr Shanahan, Mr Faithfull or any other person responsible for fire response at the Mine. He did not obtain updated information from CGEIG or the Traralgon ICC during the morning of Sunday 9 February.[[4]](#footnote-4)
		5. The Phoenix prediction map provided by the Traralgon ICC to CGEIG appears to have been the least relevant of the three prediction maps available to it on Saturday 8 February 2014. It would have been more useful if the prediction map had been provided with some explanation of its significance.[[5]](#footnote-5)
		6. The Hazelwood Emergency Command structure was not pre-populated in readiness for a fire. Senior Mine personnel were not at the Mine on Sunday 9 February to take command in the event of a fire. None of the senior personnel who were designated Emergency Commander in Hazelwood Emergency Response Plan were present. The Mine Director, Garry Wilkinson, was in Queensland. The Acting Mine Director, James Faithfull, was in Inverloch. Rob Dugan, the Mine Production Manager, was in Mallacoota. Stan Kemsley, the Technical Compliance Manager, was also not on site. The only person present who was a nominated Emergency Commander was the 2x12 shift supervisor, Ian Wilkinson, who had operational responsibilities and did not assume command after fire broke out.[[6]](#footnote-6)
		7. The Hazelwood Emergency Response Plan was not implemented until 15:20, more than an hour after fire was first detected in the Mine. Even then the Plan was poorly implemented; no-one took the first and most basic step of notifying the CFA of the fires in the Mine by calling 000.[[7]](#footnote-7)
		8. There was no back up power supply available at the Mine in the event that mains power supply was lost during a fire. Without power the fire services water system was ineffective and the Emergency Command Centre was in darkness and unable to use equipment such as CCTV monitors, computers and printers.[[8]](#footnote-8)
		9. The efforts to suppress the fires in the Mine were hampered by the limited reticulated water supply in the northern, eastern and south-eastern batters. Pipes had been removed from the fire services water system between 1994 and 2007 and had not been replaced, with the result that the fire services water system could not deliver adequate quantities of water to suppress the fires in the northern, eastern and south-eastern batters.[[9]](#footnote-9)
	4. **Recommendations**
		1. Integrated incident management teams, incorporating both emergency services and Hazelwood personnel, should be established for future incidents. To that end:
			1. The Emergency Management Commissioner and the CFA should work with GDF Suez and other essential industry participants to implement the Australasian Inter-service Incident Management System (**AIIMS**) for future incidents; and
			2. GDF Suez should ensure that those persons nominated as Emergency Commander in its Emergency Response Plan undergo incident management training to achieve incident controller accreditation and proficiency in the use of AIIMS.
		2. GDF Suez should revise its Emergency Response Plan to increase its state of readiness on days of Total Fire Ban, including requiring pre-positioning of an accredited incident controller as Emergency Commander and pre-establishment of an Emergency Command Centre.
		3. GDF Suez should review its power supply arrangements in light of the experience of 9 February 2014 and put in place back up power supply arrangements that do not depend wholly on mains power. These back up power supplies should ensure that the fire services water system and the Emergency Command Centre can continue to operate if mains power is lost.
2. **ENVIRONMENT AND HEALTH**
	1. **Commendations**

***Environment Protection Authority***

* + 1. The EPA was able to deploy a well qualified air monitoring and assessment team to the Latrobe Valley, once it was requested on 11 February 2014 to provide air quality data. The EPA was able to provide indicative air quality data from on or about 13 February 2014. It promptly established validated air quality monitoring in Morwell, which was available from 19 February 2014. Although the EPA did not have suitable air monitoring equipment available for rapid deployment in an emergency (e.g. Travel Blanket) this was quickly sourced from interstate.
		2. The EPA sought peer reviews of the Carbon Monoxide Protocol developed during the fire and also of its programs for monitoring and assessment of air quality, soil and ash and water. The benefits of these peer reviews would have been enhanced had they been shared with the community.

***Department of Health and Chief Health Officer***

* + 1. The Department of Health established and operated the Community Health Assessment Centre in Morwell from 21 February to 30 March 2014. The CHAC provided a welcome source of information and reassurance for the 2,072 people who attended it. Its benefits would have been enhanced had local medical practitioners been involved in the establishment and operation of the Centre.
		2. The Department of Health sought peer review of the Carbon Monoxide Protocol and the PM2.5 Protocol developed during the fire. It also obtained a rapid health risk assessment from the Monash University School of Public Health and Preventive Medicine of the potential long term health effects on the community of short to medium term exposure to coal mine fire smoke. The benefits of this external expertise would have been enhanced had it been obtained at an earlier stage and shared with the community.
		3. The Department of Health has committed to undertaking a long term health study of the health effects of exposure to smoke and ash from the Hazelwood Mine Fire. This study will benefit the local community who were exposed to the smoke by monitoring any long term adverse health effects. It will address the existing gap in medical understanding of the long term health effects and will assist health authorities and others in their future policy, planning and response to future similar events. Areas for improvement in the proposed long term health study are addressed in recommendation 2.3(6).

***Communications***

* + 1. On 9 February 2014 ABC Local Radio and local commercial radio provided timely and responsive community information and updates. The CFA provided timely community information and warnings through its Fire Ready app, emergency alert text messages, its website and other media.
		2. Throughout the Mine fire the fire services, in particular the CFA, provided timely and helpful community information, at a range of levels and through a wide variety of media. Fire Services Commissioner Craig Lapsley was honest and informative in his public statements and this approach was welcomed by the community. The frankness of Incident Controllers at community meetings was also appreciated. The CFA was highly visible during the fire and implemented a range of face to face communication strategies, including at community meetings, with the community information bus and through the Morwell Neighbourhood House.
		3. Community leaders and networks, for example the Morwell Neighbourhood House and Voices of the Valley utilised social media and arranged community meetings to fill information gaps and provide support.

***Schools and children’s services***

* + 1. Latrobe City Council acted decisively to close the Maryvale Crescent Early Learning Centre on 10 February 2014 and did not re-open it until 24 March 2014. Children from Maryvale were able to attend at different locations from 24 February 2014. Council closed its remaining kindergartens and early learning centres from 26 February and offered alternative locations from 3 March 2014.
		2. The Department of Education and Early Childhood Development (**DEECD**) acted relatively quickly to relocate children from Commercial Road Primary School in Morwell to primary schools in Moe and Newborough from 20 February 2014.
		3. Other schools and children’s services in Morwell were closed or relocated as follows:
			1. Berry Street School was closed from 13 February and relocated from 25 February 2014;
			2. Sacred Heart Primary School was relocated from 20 February 2014 to a disused school in Newborough;
			3. Goodstart Early Learning Centre and Dala-Lidj Woolum Bellum Kindergarten had closed by 19 February and were relocated by 4 March 2014.
		4. Both DEECD and the Catholic Education Office arranged for comprehensive cleaning of Commercial Road Primary School and Sacred Heart Primary School respectively, before students returned to their schools at the beginning of Term 2.

***Relief and recovery***

* + 1. DHS administered two separate payment schemes at short notice: relocation payments and personal hardship respite payments. The former was a flexible adaptation of the pre-existing Personal Hardship Assistance Program; the latter was a payment made from funds made available by the State Crisis and Resilience Council under the Natural Disaster Relief and Recovery Arrangements. The benefits of these payments schemes were diminished by poorly explained eligibility criteria.
		2. Other respite initiatives made available by the State through DHS all helped to alleviate the effects of smoke and ash during the Mine fire. These included the respite centre established in Moe, with the assistance of the Latrobe City Council, free V-Line travel from and to Morwell and free entry to Zoos Victoria zoos and Melbourne Museum venues.
		3. The State, through Regional Development Victoria, has provided considerable support and assistance for small businesses in Morwell affected by the Mine fire. Financial assistance was made available through the Morwell Business Relief Fund, administered by VECCI, and a range of other practical support was also available.
		4. GDF Suez has provided additional stimulus to Morwell retailers through its “Revive Morwell” initiative. It has also made $500,000 available to its Community Social Capital Committee, which is identifying a range of initiatives and programs to build community social capital through grass roots community initiatives.
		5. DHS and the Council established the Community Information and Recovery Centre in Morwell, as a central location for the provision of information and assistance. The CIRC has operated since 28 February 2014. An example of useful assistance made available at the CIRC is the presence of insurance brokers to provide advice on insurance and to assist on claims.
	1. **Criticisms**

***Environment Protection Authority***

* + 1. Despite being a designated support agency in the Emergency Management Manual Victoria, the EPA was not well equipped to measure air emissions from an emergency incident within a short time of the incident occurring. Although the EPA sourced and deployed the required equipment reasonably quickly, there was still an unsatisfactory delay in providing air quality data for decision makers including the Incident Controller and the Chief Health Officer.[[10]](#footnote-10)

***Department of Health and Chief Health Officer***

* + 1. The Carbon Monoxide Protocol (**CO Protocol**) developed by the Department of Health on 16 February 2014 applied significantly higher carbon monoxide exposure standards for the community than those applicable under the Health Management and Decontamination Plan (**Plan**) adopted by the fire services on 14 February 2014, which was based on the SafeWork Australia National Occupational Exposure Standard for Carbon Monoxide. The differences between the standards adopted in the CO Protocol and the Plan have not been satisfactorily explained to the Inquiry. Peer review of the CO Protocol obtained by the EPA from two respected epidemiologists indicates that the exposure standards adopted in the CO Protocol were too high and should be revised.[[11]](#footnote-11)
		2. The EPA reported very high levels of PM2.5 and dangerously high levels of carbon monoxide to the Department of Health on 16 February 2014, in an email from Dr Paul Torre of the EPA to Vikki Lynch of the Department of Health. The Department of Health dismissed the carbon monoxide data as “spot readings”, apparently without recognising that 8 hour average levels for that morning had been between 25 and 45 ppm, and without considering whether consistently high readings in southern Morwell during the afternoon and evening represented more than “spot readings” or referring to prevailing or forecast weather conditions. Carbon monoxide levels recorded in 5 minute readings taken between 13:30 and 18:30 at Morwell Bowling Club were 25-57 and at Maryvale Kindergarten were 20-44. If these readings were taken over a 4 hour period they were high enough to warrant at least Watch and Act warning to shelter in place even under the CO Protocol. The Department of Health determined to take no action other than issuing a high level bushfire smoke advisory the following day, which contained no reference to carbon monoxide. This inaction was dangerous, particularly in light of the high exposure levels adopted in the CO Protocol.[[12]](#footnote-12)
		3. The Chief Health Officer’s advice on 28 February 2014, that those in vulnerable groups living south of Commercial Road should consider temporary relocation, was provided late. The Chief Health Officer should have provided advice of this kind much earlier in the fire, and certainly no later than 16 February 2014. The advice to the State Emergency Management Team from 12 February 2014 was that the fire would burn for up to a month and would have significant long term implications for the community. In light of that advice it was not appropriate to adopt a “day by day” approach. There was sufficient indicative air quality data available from the EPA by 16 February 2014 for the Chief Health Officer to be satisfied that levels of PM10 and PM2.5 far exceeded ambient air quality standards, and were likely to do so repeatedly over the coming weeks. Providing advice to consider temporarily relocation from at least 16 February 2014 would have been consistent with the precautionary principle and would not have been disproportionate to the risk.[[13]](#footnote-13)
		4. The basis for limiting the temporary relocation advice to those in vulnerable groups living south of Commercial Road was poorly explained and was perceived as arbitrary and divisive. The maps depicting PM2.5 data collected by the Travel Blanket could easily have been published to explain this aspect of the advice.[[14]](#footnote-14)

***Communications***

* + 1. Although community meetings were integral to the fire services’ good communications during the fire, the community meeting held on 18 February 2014 was an exception. In light of the terrible conditions in Morwell over the weekend of 15-16 February 2014, more care should have been taken to set up the meeting in accordance with the guidelines for community meetings established by the State Control Centre the previous week. In particular, the meeting should have been chaired by a skilled and experienced facilitator and should have been attended by agency representatives able to provide authoritative information.[[15]](#footnote-15)
		2. The bushfire smoke advisories issued by the EPA and the Chief Health Officer throughout the fire were repetitive, poorly focused and unhelpful, increasingly so as the weeks went by. The advice should have been better tailored to the actual conditions in and around Morwell and the prolonged nature of the Mine fire.[[16]](#footnote-16)
		3. The health alerts and advisories issued by the Chief Health Officer to health practitioners and service providers were repetitive and did not contain information to assist practitioners’ treatment decisions and advice to patients.[[17]](#footnote-17)
		4. A good deal of the information provided to the community during the fire by the State and its agencies did not meet best practice standards in crisis communication, which requires quick, consistent, open and empathetic public communication. In particular, it was poor practice of the EPA and the Department of Health to publish information sheets that posed, but provided no meaningful answer to, pressing public health questions such as “The data on the EPA’s website looks as though we’ve exceeded air quality standards, is that right?” and “Could this current smoke exposure affect my long term health or that of my family?”[[18]](#footnote-18)
		5. The temporary relocation advice given by the Chief Health Officer on 28 February 2014 was understandably seen by many in the community as inconsistent with her earlier advice. It was also inconsistent with a bushfire smoke advisory issued by the EPA on the same day. Advice that the best precaution was to stay out of the smoke, including by leaving Morwell, should have been given clearly and consistently by the Department of Health from an early stage, no later than by 16 February 2014.[[19]](#footnote-19)
		6. GDF Suez was conspicuous by its absence in public communication throughout the fire and demonstrated little concern for the community and affected individuals. This was contrary to best practice in crisis communication, which requires quick, consistent, open and empathetic public communication.[[20]](#footnote-20)

***Schools and children’s services***

* + 1. Although the Commercial Road Primary School and the Sacred Heart Primary School were relocated relatively quickly, it would have been preferable to have closed them during the first week of the fire. It was not necessary to obtain advice from the Chief Health Officer before making a decision. As assessed by Latrobe City Council, conditions in the southern part of Morwell were plainly untenable for children and staff and not conducive to a quality education.[[21]](#footnote-21)

***Relief and recovery***

* + 1. The eligibility criteria for the relocation payments and respite payments were not well articulated or explained, appeared to be arbitrary and were inconsistently applied. This caused a degree of discontent in the community that detracted from the fact that the assistance was made available at all.[[22]](#footnote-22)
		2. While acknowledging that clean up assistance has not previously been provided by the State to households after floods and bushfires, the self clean package was inadequate to the scale of the cleaning task faced by community members. The clean up assistance package for Morwell was not announced until 18 March 2014, and there were further delays in implementing the assisted clean package, because Council could not let the cleaning contracts until after the package was announced. This diminished the usefulness of the package as many people had already made their own cleaning arrangements.[[23]](#footnote-23)
	1. **Recommendations**
		1. The Victorian Government, supported by the EPA, should take the lead in securing a national compliance standard for PM 2.5. If there remain insurmountable barriers to achieving this after 12 months then the Victorian Government should introduce its own state-based compliance standard for PM2.5. The standard should include both annual and 24 hour levels, with defined exceedences, and should be informed by the recent World Health Organisation REVIHAAP Project.
		2. The EPA should monitor PM 2.5 as a core component of its dataset at all air monitoring stations in Victoria, and should publish PM2.5 readings in real time on its website.
		3. The EPA should establish an automatic monitoring station in the southern part of Morwell close to the Hazelwood Mine, to monitor at a minimum PM10, PM2.5, carbon monoxide, ozone, key volatile organic chemicals and polycyclic aromatic hydrocarbons, and visibility. The EPA should publish the readings from the Southern Morwell automatic monitoring station in real time. After 5 years the need for and the effectiveness of the station should be reviewed. The State should invite GDF Suez to fund the Southern Morwell station, as an element of its corporate social responsibility plan.
		4. Consistent with its designation as a support agency in the Emergency Management Manual Victoria, the EPA should equip itself to be able to undertake air quality monitoring rapidly in any location, so that within 24 hours of an incident air quality data (including PM2.5, carbon monoxide and ozone) can be provided for decision-making by other agencies.
		5. The EPA should lead two research and development projects, being:
			1. the development of low cost, simple ways of measuring and recording airborne particulate matter, for example through visibility measurements and use of personal digital devices; and
			2. the development of an air quality prediction tool, for predicting the potential impact of fires on air quality and guiding community information and warnings, building on the impressive Phoenix Rapidfire fire prediction tool.
		6. The long term health study being undertaken by the Department of Health should continue for at least 20 years. The study should be governed by an independent board, including community representatives and the Latrobe Valley Health Advocate, which should publish regular progress reports.
		7. The Emergency Management Commissioner and Chief Health Officer should establish a Public Health Emergency Expert Panel able to provide advice on health and medical issues that may arise during major public health emergencies. The Panel should comprise senior experts with competencies in key fields such as air and water pollution, infectious diseases and hazardous materials. The Panel will provide advice for pre-planning of emergency responses as well as development of policies and procedures in emergency situations. Experts should be drawn from Victoria, nationally and internationally as required.
		8. The Emergency Management Commissioner, with the assistance of the Department of Health, the Department of Human Services, the EPA, WorkCover and the Municipal Association of Victoria, should develop and publish a Victorian Smoke Management Guide by December 2014. The Smoke Management Guide should build on the existing Bushfire Smoke Protocol, and should comprise a suite of documents and support materials that can be used to minimise the harmful effects of smoke in the community. The Guide should include the recommended Community CO Protocol and Community PM2.5 Protocol, and the information for employers to be developed by WorkCover.
		9. The Emergency Management Commissioner should, with the assistance of the Chief Health Officer, the EPA and WorkCover, revise the Community CO Protocol and the Community PM2.5 Protocol. Both protocols should be finalised by November 2014. Before being finalised, the CO Protocol and PM 2.5 Protocol developed during the Mine fire should be reviewed by an independent expert panel appointed by the Emergency Management Commissioner. Each protocol should specify:
			1. the types of monitoring equipment to be used;
			2. frequency and types of locations suitable for monitoring;
			3. how the results will be assessed to provide information for decision making;
			4. trigger levels for action for the general community and those in specific risk categories; and
			5. response actions according to each trigger level.

The Community CO Protocol should be developed in tandem with the Firefighter CO Protocol.

* + 1. The Victorian WorkCover Authority should develop and publish information for employers about occupational air quality standards, including the SafeWork Australia Hazardous Substances Information System. The information should include practical advice on how to monitor air quality in the workplace and undertake health surveillance to enable employers to meet their duties to employees and others.
		2. The Victorian Government should declare the Latrobe Valley as Victoria’s first “Health Conservation Area” and should appoint a Health Advocate for the Latrobe Valley to act as a champion for improved health in the Latrobe Valley.
		3. Emergency Management Victoria should work to ensure that all agencies involved in emergency response have, or have access to, the capability and resources needed for effective public communication during an emergency. This should include:
			1. the provision of training in crisis communication that addresses the human relations and affective dimension as well as the provision of simple and meaningful information;
			2. the availability of specialist communications staff to provide rapid assistance during a complex or prolonged incident;
			3. the development of communications capabilities in all media and forums, from facilitating community meetings to effective use of social media.
		4. Emergency Management Victoria should lead the development of a community engagement model for emergency management, under which all agencies involved in emergency response will engage with communities and identify trusted networks as an integral component of emergency management planning. Under this community engagement model, for example, the Department of Health would actively engage with local health practitioners as part of its emergency management planning, so that it can turn to them as trusted opinion leaders during environmental and public health episodes; Latrobe City Council would engage with a wide range of community groups.
		5. A private operator of essential infrastructure, such as GDF Suez, should be included in the co-ordination of public communications during an incident involving that infrastructure. To this end, the Victorian Government should review the role and constitution of the Emergency Management Joint Public Information Committee (**EMJPIC**) in the Emergency Management Manual Victoria to enable the participation of private operators in EMJPIC and its regional and local equivalents where appropriate.
		6. GDF Suez should review its crisis management communication strategy in line with international best practice.
1. **FIREFIGHTER SAFETY**
	1. **Findings**
		1. This is the third major Victorian inquiry in recent years to consider firefighter safety.[[24]](#footnote-24) It is pleasing to note that many of the recommendations of those earlier inquiries were implemented at Hazelwood. For example, the agencies made extensive use of safety officers. Safety officers have an important place under AIIMS. However, the evidence from Black Saturday was that they were not utilised anywhere near as well as they could have been on that terrible day in 2009.[[25]](#footnote-25)
		2. The firefight at the Hazelwood mine was complex and vast. It also exposed the firefighters and the employees of the mine operator to serious health hazards. First and foremost, they were exposed to carbon monoxide (‘CO’).
		3. The evidence is that 14 firefighters presented to hospital for CO exposure: Lapsley (2), at [30]. A number of these incidents were notified to the VWA (Worksafe) under the Occupational Health and Safety Act 2004: Kelly (ex. 31) at [41]. Volunteer firefighter Doug Steley was one of the first firefighters to attend at Hazelwood on 9 February 2014. He referred to the effect of the fire on his health and the health of other members of the Heyfield brigade. He thought six members of the brigade had suspected CO poisoning: statement (ex. 24) at [33].
		4. In addition, 12 mine staff were sent to hospital as a result of high CO readings: Harkins (2) at [40].
		5. Brown coal fires are notorious for emitting CO due to the incomplete combustion that occurs.
		6. The harmful health effects of CO are well established. Dr Torre explained that inhaling high levels of carbon monoxide can cause “headache, nausea, vomiting, dizziness, blurred vision, confusion, chest pain, weakness, heart failure and difficulty breathing”: ex. 38, para [11]. He also noted that “breathing lower levels of carbon monoxide during pregnancy can lead to slower than normal mental development of the child”. Finally, he noted that “prolonged exposure ... at lower levels can cause tissue damage and people suffering from cardiovascular or lung diseases are more vulnerable to the toxic effects of carbon monoxide”: ex. 38, para [11].[[26]](#footnote-26)
		7. There are well established workplace exposure standards for CO. These are promulgated by Safe Work Australia: see Richardson (2), ex. 40 at p. 8.
		8. The exposure standard for CO calculated on an 8 hour Time Weighted Average (TWA) is 30 ppm. There are also Short Term Exposure Limits (STELs) as follows:
			1. 15 minute average: 200 ppm
			2. 30 minute average: 100 ppm; and
			3. 60 minute average: 60 ppm:

Richardson (2), table 1.

* + 1. Reports into previous fires at the Hazelwood mine have both referred to the dangers to firefighters and mineworkers of CO and made recommendations to ensure that those dangers are addressed prior to any future fires.
		2. The GHD report into the 2006 fire commissioned by GDF Suez recommended that “a procedure for dealing with Carbon Monoxide (CO) during firefighting, including the use of CO monitors, should be developed since personnel safety is a major responsibility and concern in fighting coal fires”: Lapsley (1), att. 36, rec. 17.
		3. In the CFA report into the same fire there is recognition of the dangers of CO exposure for its firefighters. At page 30 of that report, after noting that a number of firefighters were overcome by CO exposure, it states that “any similar fires in this environment in the future will require the careful management of this **now known risk**”: Lapsley (1), att. 35, page 30 (our emphasis).

***Management of CO exposure by the Emergency Services***

* + 1. Volunteer firefighter Doug Steley was provided with basic advice about CO exposure on the night of 9 February 2014. He was given a CO monitor and told “if it beeps once you have got 8 hours of time in the area before you have any ill-effects. If it beeps continuously get out”: T619:11-20.
		2. The risk posed by CO exposure to firefighters was recognised by Station Officer Ross Male in his hand drawn Incident Action Plan (IAP) prepared on the morning of 10 February 2014: see Lapsley (1) at [98]; Harkins (1), att. 14.
		3. That IAP noted at p. 5 that “health monitoring and Hazmat detection team to monitor CO levels of personnel as required”. However, it did not refer to any exposure limits or monitoring protocols other than to state that there should be “total withdrawal at 200 ppm”: page 8.
		4. The Incident Shift Plans for 11 February 2014 stated that “all Hazelwood crews to monitor for CO and report back readings via radio ... every hour. If a peek [sic.] reading of 150 ppm is indicated withdraw to a clean area immediately”.
		5. Late in the evening of 11 February 2014, following the presentation at Sale hospital of a number of firefighters, the Incident Controller ceased firefighting at the mine pending a review of safe work arrangements: Lapsley (2) at [14].
		6. From night shift on 12 February 2014 (the 4th day of the firefight at the mine), an upgraded system of work to manage the risk of CO exposure was implemented at the mine: Lapsley (2) at [17]. Mr Lapsley explained that the protocol that was adopted was:
			1. Crew leaders were to wear personal CO monitoring devices and monitor CO levels in the surrounding atmosphere;
			2. The readings were to be reported every 15 minutes;
			3. Where atmospheric CO measured over 50 ppm, firefighters were to wear breathing apparatus (BA) for the maximum time allowed for working with BA (20-30 minutes);
			4. Where atmospheric CO measured over 75 ppm, firefighters were to don BA and leave the area.
		7. On the following day (13 February 2014), some firefighters were observed not wearing their BA. They reported that it was impractical to wear the BA while fighting the fire because of the duration of allowed working time while wearing the BA.
		8. On 14 February 2014, a documented “Health Management and Decontamination Plan” became operational (Lapsley (2), att. 3). At page 17 of the Plan, Table 1 set “safety zones and action levels”. The Table stated that the levels were designed to minimise the risk of personnel exceeding the biological exposure limit of 5% Carboxyhaemoglobin. It stated that at CO concentrations below 30 ppm, firefighters could work in standard PPE (P2 respirators). Where there were readings between 30 and 50 ppm, the Table states “as per site SCBA, crew rotation procedure”. If there are readings over 50 ppm, it stated “as per site procedure for essential works”.
		9. This was further explained at p. 15. Firefighters were to record CO levels every 15 minutes and report them hourly. If in a one hour period, there were 2 measurements that exceeded 50 ppm but were less than 75 ppm, “workers must withdraw or utliise [BA]”. A single measurement over 75 ppm would result in a requirement to use BA or withdraw immediately.
		10. The Inquiry heard from Hazmat Unit Commander Costa Katsikis. He is a highly experienced fire officer employed by the MFB. He was deployed to the Hazelwood IMT on 15 and 16 February 2014 as a deputy incident controller. He gave evidence of a CO protocol that he oversaw which differed from the one described as operational by Mr Lapsley: see statement of Katsikis at [13]. Member Catford drew this to Mr Lapsley’s attention and asked him if there is a potential for confusion among firefighters “in circumstances where there’s apparently conflicting advice and changing plans, which seem a bit on the run from our perspective...”: T708.4-19. Mr Lapsley agreed and recognised that this was the result of the absence of a “solid plan”: T708.9-11.
		11. The 14 February 2014 protocol governed the management of CO exposure at the mine from 14 February 2014 until the firefight was concluded in March 2014.
		12. The UFU, in its submission to the Inquiry (ex. 28) has raised a number of concerns with the above developments. It points out that the protocols were not consistently applied and were difficult to apply in practice.
		13. The UFU also drew to the attention of the Inquiry advice obtained by the emergency services from an occupational hygienist, Mr Robert Golec of AMCOSH P/L. In a report dated 13 February 2014 to the MFB (att. 5.1.4 to ex. 28), Mr Golec raised serious concerns about the way in which CO exposure was being managed at the mine. In particular, he queried whether 5% Carboxyhaemoglobin was an appropriate limit to use. He suggested a limit of 2.5-3% in line with the SWA exposure standard. This advice was not followed in its entirety by the emergency services for reasons explained at para [20] of Lapsley (2).
		14. The UFU has made a complaint to the VWA about this and has asked the VWA to investigate if the CFA and the MFB complied with the *Occupational Health and Safety Act 2004* in relation to this and other matters during the firefight at the Mine: UFU submission, att 5.1.15. The Inquiry should note that on 16 April 2014, the Chief Executive of the VWA responded to that complaint and advised that the UFU’s letter had been “referred to the Enforcement Group for a comprehensive investigation to be undertaken in relation to the allegations raised by the UFU to establish whether any contraventions of the *Occupational Health and Safety Act 2004* have occurred”: UFU submission, att. 5.1.26.

***The Draft Standard Operating Procedure***

* + 1. Finally, it is necessary to make reference to a draft standard operating procedure (SOP) entitled ‘Latrobe Valley Open Coal Mines – Response to Fires’ (att. 3 to Lapsley (2)). The draft SOP contained a detailed protocol for managing CO exposure. It required that “all personnel responding to any fire or incident within the open cut mine area must be aware of the physical demands and adverse conditions likely to be encountered during operations and consider the potential adverse effects any pre existing medical conditions will have on their health and safety” (clause 3). There is a reference to “alarm 1” and “alarm 2”. The contents of the draft are consistent with the evidence of Doug Steley noted earlier.
		2. The draft SOP bears the date 29/04/10. Given the recognition in the CFA report in January 2007 of the need to implement a protocol for the management of this serious health and safety risk, it is deeply concerning that the SOP had not been finalised and implemented prior to 9 February 2014. Mr Lapsley candidly conceded that it “hasn’t been a priority of CFA to have it signed off”: T683.29-30. He accepted that on an issue of such importance, this was not good enough: T684.14. He also accepted that, in light of the experience of the 2006 fire, the procedure should have been in place and ready to be followed on 9 February 2014: T685.22.

***Vulnerable Groups***

* + 1. It was noted earlier that certain categories of firefighters are particularly susceptible to suffering ill effects from CO exposure. These include pregnant women or women of child bearing age and those with pre-existing heart or respiratory conditions. There is also evidence that smokers are a vulnerable group as a result of their higher than normal pre-existing CO levels in their blood.[[27]](#footnote-27)
		2. The evidence of Mr Lapsley was that the CFA has no records of the pre-existing health of its volunteers: T695: 10-17. The position differs with respect to paid firefighters: T695:18-26.
		3. It is a cause for concern that the CFA deploys its volunteer firefighters to mine fires where they are likely to be exposed to CO without any knowledge of the pre-existing health of those volunteers. Mr Lapsley’s response to this was that it was for the volunteers with such conditions to “self-manage”: T694.25. However the evidence of two of the volunteers who were deployed to Hazelwood (Doug Steley and Anthony Lalor) was that they were provided with little if any information about the risks that they would be exposed to at the mine. Clearly any decision to “self manage” must be an informed decision.
		4. As noted above, pregnant firefighters or firefighters with pre-existing respiratory and cardiac conditions are more likely to suffer from the consequences of CO poisoning. This not only compromises their own health and effectiveness but puts their colleagues at risk if they need to attend to and evacuate an affected firefighter.
		5. The firefighters were also exposed to the hazards of batter stability and water contamination. Mr Lapsley’s second statement details how these hazards were managed.

***Management of CO exposure by GDF Suez***

* + 1. As noted above, several GDF Suez employees were hospitalised due to CO exposure during the mine fire.
		2. GDF Suez also had the issue of CO exposure for its mine workers drawn to its attention in reports of previous mine fires. Recommendation 17 of the 2006 report was that GDF Suez should develop a procedure for dealing with CO during fires and for monitoring CO levels.
		3. The 2008 report (Dugan statement, att. 6) noted that this recommendation had only been partly implemented. This was a reference to page 18 of the mine fire instructions. Mr Harkins explained that, in accordance with these instructions, mine workers were provided with CO monitors (“canaries”) during the firefight. They were also required to comply with the CFA’s testing regimes.
		4. As conceded by Mr Harkins in his evidence to the Inquiry, the instructions are “extremely general”: T733.31. He accepted that there is definitely room for improvement in GDF Suez’s management of CO exposure: T734.5.
		5. It is perhaps fortunate for the employees of GDF Suez that GDF Suez was able to ‘piggy back’ on the procedures implemented by the fire services from 14 February 2014 onwards.

***Attendance and action by the Victorian Workcover Authority***

* + 1. As noted above, a number of notifications of CO exposure of firefighters were made by the CFA to the VWA. These are attached to the statement of Mr Robert Kelly of the VWA (ex. 31). As Mr Kelly explained in his statement, there were visits by VWA inspectors to the mine on 14 February 2014 and 21 February 2014. On each occasion, the inspectors were satisfied that the management of CO exposure was in accordance with the requirements of the *Occupational Health and Safety Act 2004*.
		2. Mr Kelly was uncertain what standards were used by the inspectors to make this assessment: T775.20-25. The Inquiry received a letter dated 10 June 2014 from the VGSO in relation to this question. The letter advised that the standard used was the SWA exposure standard referred to above: see ex. 83
		3. As noted above, the VWA has an ongoing investigation into the question of whether CO exposure management during the firefight accorded with the requirements of the *Occupational Health and Safety Act 2004*.
	1. **Commendations**
		1. The CFA, MFB and GDF Suez are commended for deploying air CO and carboxyhaemoglobin monitoring for fire-fighters once the risk of the exposure of firefighters and mine employees to CO was detected.
		2. The CFA and MFB are commended for their extensive use of safety officers and advisers in Incident Management Teams.
	2. **Criticisms**
		1. The Country Fire Authority should have responded well before February 2014 to the recommendations in its 2007 report into the 2006 fire at the Hazelwood Mine by developing a procedure for dealing with exposure to carbon monoxide during firefighting.
		2. GDF Suez should have had in place a comprehensive procedure for managing the exposure of its employees to carbon monoxide during a mine fire.
		3. In responding to carbon monoxide exposure at the Hazelwood Mine Fire the fire agencies demonstrated poor communication, confusion, policy on the run and sub optimal responses.
	3. **Recommendations**
		1. The Emergency Management Commissioner should, with the assistance of the Chief Health Officer, the EPA and WorkCover, revise the Firefighting CO Protocol. The Protocol should be finalised by November 2014. Before being finalised, the Firefighting CO Protocol should be reviewed by an independent expert panel appointed by the Emergency Management Commissioner. The Protocol should specify:
			1. the types of monitoring equipment to be used;
			2. frequency and types of locations suitable for monitoring;
			3. how the results will be assessed to provide information for decision making;
			4. trigger levels for action for the general community and those in specific risk categories; and
			5. response actions according to each trigger level.

The Firefighting CO Protocol should be developed in tandem with the Community CO Protocol. Once finalised it should be widely disseminated in the Victorian coal mining industry and other industries in which CO poisoning is likely to occur in a fire or similar situation.

* + 1. GDF Suez should adopt and apply the Firefighting CO Protocol.
		2. The CFA, MFB and GDF Suez should highlight the risks of CO poisoning to firefighters with pre-existing respiratory or cardiac conditions or who may be pregnant. This should occur during recruitment, selection, training and deployment of both employed and volunteer fire fighters. At the start of each fire season fire-fighters should be encouraged to self disclose if:
			1. they have pre-existing respiratory or cardiac conditions; or
			2. they are female of child bearing age whether they are or could be pregnant.

Before deploying at an incident fire-fighters should again be reminded of the risks. A short educational video should be developed and made available on digital devices.

1. **MITIGATION AND PREVENTION**
	1. **Findings**

***The Regulatory Framework: the Regulation of Mines***

* + 1. Mining in Victoria is regulated under *the Mineral Resources (Sustainable Development) Act 1990* (Vic.) (‘MR(SD) Act’).
		2. One of the purposes of that Act is to “establish a legal framework aimed at ensuring that …the health and safety of the public is protected in relation to work being done under a licence” (s. 2(b)(vii)).
		3. The principal form of regulation of the Hazelwood Mine is the requirement for the operator to be licensed to mine pursuant to section 26 of the MR(SD) Act. The operator of Hazelwood mine has held a 30 year licence under the Act since May 1996.
		4. The MR(SD) Act is regulated by the Earth Resources Regulation Branch of the Department of State Development, Business and Innovation (DSDBI). We will refer to this as the ‘Mine Regulator’ while noting that since 1 January 2008, the Victorian Workcover Authority (‘VWA’) has been the regulator for occupational health and safety (‘OHS’) in mines.
		5. Under section 40 of the MR(SD)Act, a licensee requires an approved work plan to undertake mining work. The DSDBI Department Head approves a work plan. A work plan may be varied under s. 41 and the Department Head may specify, in granting such an approval, that certain conditions must be observed by the licensee in carrying out the work plan: s. 40(5).
		6. Until 2010 a work plan was required to address occupational health and safety: White [78]. This requirement was removed from the relevant regulations in that year as part of the transfer of responsibility for OHS in mines from the mine regulator to the VWA (discussed below).
		7. The position of the mine regulator at the Inquiry concerning its responsibility for mitigating the risk of fire in the open cut mines is clear. It has none: T1594.3-6; T1595.21-26. According to Ms White, the lead agency for managing fire risk in the worked out batters of the mine is the VWA: T1603.10-11.

***Occupational Health and Safety: Regulation by the VWA***

* + 1. The history of the regulation of OHS in Victorian mines is complex. It is explained at paras [57]-[84] of Ms White’s statement.
		2. Of particular significance to this Inquiry was a report provided to the State Government in 2006 which recommended the transfer of regulatory responsibility for OHS in mines from the Mine regulator to the VWA. The report by Neil Pope is att. 15 to the statement of Ms White.
		3. The Pope report recommendations were accepted by the government. The transfer took effect on 1 January 2008.
		4. The VWA administers the *Occupational Health and Safety Act 2004* (‘OHSA’). As Mr Niest, the Executive Director Health and Safety at the VWA explained, the OHSA is based on the ‘Robens model’ of regulation. The adoption of this model involved a shift from “detailed, prescriptive standards to a more self-regulatory and performance based approach”. As he also explained, instead of “prescribing how to do (or not do) something, the OHS Act requires the owner of the risk (the duty holder) to take responsibility to achieve the desired outcome”: statement of Niest (ex. 70) at [11].
		5. The regulatory model underlying the OHSA differs significantly from that found in the MR(SD) Act. Insofar as mines are concerned, there is no requirement for licensing and the approval of work plans by the OHS regulator.
		6. For present purposes, the key provision of the OHSA is section 23.
		7. ‘Reasonable practicability’ is explained in section 20.
		8. The interpretation of these provisions is in turn informed by sections 2(1)(c) and 4(1).
		9. Mr Niest was asked about the application of section 23 to the fire under examination by the Inquiry. His evidence on this issue is difficult to follow and is internally contradictory.
		10. He was asked if it was the VWA’s view that the 2014 mine fire arose from the conduct of the undertaking of the operator of the mine. He answered ‘No’: T1817.27-31. He explained that this is because “the undertaking is to extract brown coal from the earth and transport the brown coal to a power station; there is nothing in that conduct that caused the fire”: T1818.1-5.
		11. This seems to be an unduly narrow approach to the operation of section 23 of the OHSA. It also seems to be inconsistent with the on-going investigation into the fire that is being conducted by the VWA. Mr Watson, who is the Manager of Investigations of the VWA, confirms that the VWA has commenced an investigation into the fires that burned in the Mine: statement of Mr Watson (ex. 65) at [8].
		12. The issue of the application of s. 23 of the OHSA is highly significant because the regulatory reach of the VWA in relation to risks to public safety as a result of mine fires is constrained by the terms of section 23. If Mr Niest’s narrow view is accepted and section 23 of the OHSA does not apply to fires in the worked out parts of the mine, there may well be a gap in the regulatory framework. This is because of the clear evidence discussed above of Ms White about the role of the mine regulator in relation to regulation of mine fires.
		13. There are two issues here:
			1. a legal issue about the correct construction of s. 23 of the OHSA; and
			2. a factual issue about whether, having regard to that construction, and the evidence before the Inquiry, a fire in the worked out batters of the mine falls within section 23.
		14. The legal issue is relatively straightforward. Courts have construed section 23 (and its equivalent provisions in other similar statutes) broadly and in a manner that is consistent with the objects of the OHSA. Generally speaking, where an activity or event occurs at the place at which the undertaking is carried out, it will be considered to arise from the conduct of the undertaking.[[28]](#footnote-28)
		15. Nor is the factual issue complex. The Northern batters of the mine are in no sense “non-operational”. As has been explained by witnesses such as Mr Faithfull, the extensive infrastructure on and around the Northern batters (e.g. high voltage power lines, pipes, watering systems, geotechnical monitoring equipment) is integral to the mine’s operations. The presence of this infrastructure is the main reason why the area cannot be rehabilitated prior to the end of the mining operations: see statement of James Faithful (ex. 88) at [60].
		16. It is submitted that, despite the evidence of Mr Niest, the Inquiry should conclude that the risks to public safety that arose from the fire in the worked out Northern batters of the Hazelwood mine in 2014 are risks that arose from the conduct of the undertaking of GDF Suez.
		17. However, in light of the evidence of Mr Niest of the VWA and Ms White of the mine regulator, it is necessary to consider the question of whether there is a gap in the regulation of mines in Victoria.
		18. Mr Niest was asked directly if he thought there is a regulatory gap. He said “yes, there may be”: T1815.23-24. He also said that any such gap should be filled: T1817.17-26. He was unaware of the identity of the regulator in respect of public safety that was unrelated to the conduct of the mine’s undertaking: T1856.27.
		19. We submit that there is a gap although it is not as wide as it would be if one was to accept Mr Niest’s evidence about the reach of s. 23 of the OHSA. We will return to what should be done about filling the gap below.

***Part 5.3 of the Occupational Health and Safety Regulations 2007***

* + 1. In addition to the general duties imposed on GDF Suez by the OHSA itself, there are also duties imposed on it by Part 5.3 of the *Occupational* *Health and Safety Regulations* 2007 (‘the regulations’).
		2. The Hazelwood mine is a “prescribed mine” for the purposes of regulation 5.3.4. As a result it must comply with both the general requirements set out in sub-divisions 1 and 2 of Division 2 of Part 5.3 as well as the more onerous obligations in sub-division 3. Under these provisions, and in addition to other duties, GDF Suez is required to:
			1. identify all “mining hazards” at the mine: regulation 5.3.7(1)(a); and
			2. assess the risks to health or safety (of any person) associated with those hazards: regulation 5.3.7(1)(b); and
			3. adopt risk control measures that eliminate, so far as is reasonably practicable, any risks to health and safety: regulation 5.3.8(1)(a); or
			4. if it is not reasonably practicable to eliminate such risks, reduce those risks so far as is reasonably practicable: regulation 5.3.8(1)(b); and
			5. review, and if necessary, revise each of (1)-(4) above “after any incident involving a mining hazard occurs at the mine”: regulation 5.3.9; and
			6. conduct a comprehensive and systematic Safety Assessment of all “major mining hazards”: regulation 5.3.23.
		3. A fire or explosion that could pose a risk to health or safety is included in the definition of “mining hazards”: regulation 5.3.2. This clearly included a fire in the worked out parts of the Hazelwood mine. Such fires may also be “major mining hazards” under regulation 1.1.5 in that they have the potential to cause an incident that would cause, or pose a significant risk of causing more than one death. This is not an easy provision to apply in practice.
		4. The evidence before the Inquiry is that the VWA has concentrated its regulatory approach on compliance by GDF Suez with regulation 5.3.23 in relation to mine fires that meet the definition of “major mining hazards”. Inspector Hayes of the VWA was one of a team of three who conducted an audit in 2012 in relation to this matter. In June 2012, he issued an improvement notice to GDF Suez requiring it to comply with regulation 5.3.23. He ultimately concluded in October 2012 that GDF Suez had complied.
		5. In his evidence before the Inquiry he conceded that he may not have checked on compliance with **all** aspects of regulation 5.3.23: T1776.24-1777.6. In particular, there is no suggestion that GDF Suez addressed the matters in regulation 5.3.23(4)(c)-(e) about the process by which it controls the risks identified.
		6. In his report to the Inquiry, Professor Cliff questioned whether GDF Suez had complied with regulation 5.3.23: ex. 91 at page 8. However, he modified this view in light of further information provided to him after his report was completed: T2090.26-2091.4.
		7. Crucially for this Inquiry there is no evidence that as part of its attempt to comply with part 5.3 of the regulations, GDF Suez assessed the risk of a fire in the worked out batters of the mine as required by regulation 5.3.7. As Professor Cliff explained, this seems to be because their focus was on “multiple fatality under the major mining hazard feature”: T2091.6. Professor Cliff’s attention was drawn to the evidence of Mr Polmear about minimum compliance with the Fire Service Code and he said (T2093.5-8):

*Compliance with the code is no[t] thinking, you just follow the recipe. It doesn’t evaluate the risk or the effectiveness of anything, it’s just, do as your told.*

* + 1. The evidence suggests that GDF Suez:
			1. did not assess the risks associated with fire in the worked out batters of the mine in accordance with regulation 5.3.7(1);
			2. did not control those risks in accordance with regulation 5.3.8; and
			3. as a result, failed to review those measures after the fire in a non-operational part of the mine in September 2008 as required by regulation 5.3.9(2)(b).
		2. What is particularly concerning is that the internal investigation into the September 2008 fire conducted for GDF Suez in December 2008 by GHD highlighted the need for this very risk to be addressed: see Prezioso (ex. 93) att. 3. At page 4 of the report, GHD noted that “the significant factor in this fire was the escalation into an uncontrollable fire within a short time due to [mine] personnel being unable to mount an effective initial response as the non-operational areas have very difficult access and there were insufficient fire-fighting facilities available”. This finding informed recommendation 6 (on p. 15):

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

* + 1. Given that there are some obvious similarities between the 2008 and the 2014 fires, it is of considerable concern that GDF Suez did not conduct such a risk assessment. Had it been done, and appropriate control measures implemented in accordance with the outcome of the assessment and the requirements of the regulations, the 2014 fires in the worked out areas of the mine may not have occurred. Even if they had occurred, they may not have had the catastrophic impact that they had.
		2. The evidence before the Inquiry establishes that a risk assessment of the non-operational areas of the mine was not undertaken between December 2008 and 9 February 2014. This is despite an internal audit into implementation of previous fire report recommendations in 2012 which concluded that recommendation 6 from the 2008 report had not been implemented. The audit was conducted by Stan Kemsley, the GDF Suez’s Mine Technical Compliance Manager: statement of Romeo Prezioso (ex. 93) att 2, page 4.
		3. Mr Prezioso’s statement sets out a number of steps that were taken subsequent to the 2008 fire to identify hot spots and other matters: see at [93]-[115]. However, he ultimately conceded that no risk assessment had been conducted as recommended: T2226.16; T2227.26. He was also unable to advise the Inquiry if the issues had been revisited by Mr Kemsley or anyone else after 2012: T2229.2
		4. Mr Kemsley is still employed by GDF Suez and has attended the Inquiry as an observer. No reason has been advanced for why he could not have given evidence: T2229.5-9. Given the focus in the Inquiry on the failure by GDF Suez to implement this vital recommendation from the 2008 GHD report, it is surprising that the Inquiry has not heard from Mr Kemsley.
		5. Before leaving the topic of the 2008 GHD report, it is necessary to refer to the evidence concerning the VWA’s awareness of the report. The fire occurred on 14 September 2008. A VWA inspector attended at the mine on 16 and 22 September 2008 in response to notification of the fire which was received on 15 September 2008: statement of Robert Kelly (ex. 31) at [22]-[24]. On the second visit, the inspector was informed that “an environmental and engineering consultancy firm, GHD, had been contracted to investigate the fire incident”: Kelly at [25].
		6. The VWA never asked for a copy of the GHD report: T1840.29-1841.3. As a result they were in no position to monitor the implementation by GDF Suez with its recommendations. This is most unfortunate as it represents a lost opportunity.
		7. The approach of the VWA stands in stark contrast with the approach of the mine regulator to a similar situation in respect of the 2006 fire report. As Ms White explains, an inspector of mines issued an improvement notice (under the OHSA) to GDF Suez on 13 February 2007 requiring it to comply with the recommendations made by GHD in its 2006 fire report: statement of White (ex. 59) at [167]. This led to a review by GDF Suez of its Fire Policy and Code of Practice: White at [168]-[172].

***Fire Mitigation Practices by GDF Suez***

* + 1. It is important to bear in mind Professor Cliff’s observation that a focus on any failures of regulation should not obscure that “the primary responsibility for the management of risk rests with GDF Suez not the inspectorate”: Cliff report, ex. 91, page 10.
		2. A work plan for the Hazelwood mine was approved by the mine regulator in September 1996. It has been varied several times with the most recent variation taking place in 2009.
		3. The approved work plan for the Hazelwood mine reflected the ‘Work Plan Submission’ submitted by Hazelwood Power Corporation on 1 June 1995 (statement of White (1), att. 3; White T1586.12-28). The following clauses of that submission addressed fire mitigation and fire protection:

*7.4 Bushfire Mitigation Program*

*In recognition of the fact that the Mine is situated in a high bushfire risk area and the potential consequences on the mine infrastructure of a bushfire, HPC contributes to funding a Bushfire Mitigation Program in the area surrounding the Mine. The Bushfire Mitigation Program conforms with the ‘Latrobe Valley Open Cut Mines – Fire Service Policy and Code of Practice’ – see section 7.7 below.*

*...*

*7.7 Fire Protection Policy*

*HPC adheres to the Latrobe Valley Open Cut Mines – Fire Service Policy and Code of Practice’ issued April 1994...*

*The Fire Service Policy and Code of Practice contains the essential requirements and operating procedures for fire protection services for the Mine and its surrounding area.*

*An extensive network of water reticulation and sprays has been established in the Mine for fire protection.*

*Refer Figure 13A: ‘Fire Service Network Schematic’.*

* + 1. Figure 13A was a schematic that depicted the fire reticulation pipework network in place in the mine at that time. It depicted a network that surrounded the mine.
		2. The evidence before the Inquiry establishes that the reticulated water network at the Hazelwood mine was extensively altered from about 1995 onwards: statement of Richard Polmear (ex. 90) at [27]. The pipes that were removed were in the worked out Northern batters of the mine: evidence of Polmear, T2056.3-9. Mr Polmear explained that the pipes which were removed were corroded and unserviceable.
		3. Mr Polmear was asked why these pipes were not replaced once they had been removed. His answer was as follows (T2057.8-9; T2060.13-19; T2061.10-25):

*They didn’t need to be, in accordance with the policy.*

* + 1. The policy Mr Polmear referred to in his evidence was the ‘Latrobe Valley Open Cut Mines – Fire Service Policy and Code of Practice’ issued April 1994.
		2. Expert witness, Mr Incoll explains that “effective cover of exposed coal surfaces with water sprays requires a reticulation system capable of delivering water in the volumes required for dampening down of exposed coal in all sectors of the mine”: para [208]. At paragraphs [209] and [210] of his report (ex. 92) Mr Incoll notes the difference between the pipework in 1996 and the pipework in 2014. He notes that the present fire reticulation layout shows that “the Northern batters supply is no longer in place”: [210]. It is noted that some of the pipework was replaced during the firefight in March 2014.
		3. Since 1994, the policy has set out the “minimum requirements” for fire protection in the worked out batters. The current requirements are in section 3.4 of the 2013 document. The principal requirement is to have tanker filling points located in positions such that a tanker on any part of the worked out batters is within 5 minutes travel of a tanker filling point.
		4. On the evidence before the Inquiry, it is unclear if even this “minimum” requirement was met by GDF Suez. Mr Polmear “believed” it had: T2061.2. He assumed that some testing had been done to confirm compliance but no document evidencing such testing has been placed before the Inquiry.
		5. In any event, tanker fill points are only relevant to fire suppression not its prevention. What is needed for prevention, as Mr Incoll explained to the Inquiry, is either covering of the batters with soil or some form of fire retardant or water to wet down the worked out batters on days of high fire danger: report of Rod Incoll (ex. 92) at [197].
		6. Perhaps of greater significance is what Mr Polmear’s evidence reveals about the approach of GDF Suez to its responsibilities to manage the risk of fire in the worked out parts of the mine. Despite being certified to AS/NZS 4801:2001Occupational Health and Safety Management Systems, there is no evidence that GDF Suez conducted any risk assessment to examine whether the removal of the pipes contributed to a reduction in the level of fire preparedness or mitigation and hence of safety. As Professor Cliff explained at T2101.12-28, the failure of GDF Suez to assess the risks associated with the removal of the pipework is both unacceptable and inconsistent with the approach to be expected of a company certified under AS4801: “to say we don’t do it because we don’t have to is not a management technique”.
		7. The evidence is that this policy was updated by GDF Suez in the years after privatization. The Mine Production Manager, Mr Dugan, explained that the 2013 iteration of the ‘Mine Fire Service Policy and Code of Practice’ is based upon the 1994 document, which is in turn based on the 1984 SECV ‘Latrobe Valley Open Cuts Fire Service Policy’: statement of Dugan (ex. 13) at [27] and [28]. Mr Lapsley found this “amazing”: T2324.14.
		8. Surprisingly, the removal of the pipe network on the Northern Batters was not the subject of an application to vary the work plan. Ms White gave evidence that such work would have to be by way of a variation to the work plan: T1587.23-28. However, she also agreed with the proposition that as long as the standards in the 1994 Code continued to be met, that would constitute compliance with the requirements of clause 7.7 of the approved work plan: T1680.16-20.
		9. Ms White also told the Inquiry that as far as the mine regulator was concerned GDF Suez had not breached any of the provisions of the MR(SD) Act: T1642.19-22.

***The 2014 Amendments to the MR(SD) Act***

* + 1. The MR(SD) Act is the subject of recent amendments. Some of these are very significant for the Inquiry. They are referred to at paragraph [184] of the first statement of Ms White (ex. 59).
		2. Section 15 of the *Mineral Resources (Sustainable Development) Amendment Act 2014* (‘Amendment Act’) amends the MR(SD) Act by inserting a new section 40. This amendment will be operative no later than 1 November 2014 (see s. 2). The new section 40 alters the required contents of a work plan but in ways that are not significant for the Inquiry.
		3. Section 16 of the Amendment Act further amends s. 40 of the MR(SD)Act by inserting a new s. 40(3). However, this further amendment will not be operative until 31 December 2016 unless it is earlier proclaimed.
		4. Once s. 16 of the Amendment Act is proclaimed, a work plan will be required, among other things to:

*(b) identify the risks that the work may pose to the environment,* ***to any member of the public****, or to land or property* ***in the vicinity of the work****; and*

*(c) specify what the licensee will do to eliminate or minimise those risks* ***as far as reasonably practicable”.[[29]](#footnote-29)***

***Integrated Fire Management Planning***

* + 1. The evidence before the Inquiry is that Integrated Fire Management Planning occurs at both the regional and the local level.
		2. Mr King, the Co-ordinator of Emergency Management at the Latrobe City Council gave evidence that integrated fire management planning involves “looking in more depth at risks associated with fire” on an all agencies approach and including the owners of critical infrastructure: T1912.24-1913.6.
		3. At the regional level, the Inquiry has before it the Gippsland Regional Strategic Fire Management Plan: att. 38 to Lapsley (1). At the local level, the Inquiry has both the 2011 Latrobe Municipal Fire Prevention Plan and the 2013 Latrobe Municipal Fire Management Plans (see att. 1 to the statement of Mr King and ex. 63 respectively).
		4. There is a significant issue on the evidence concerning the effective implementation of these plans. In fact the evidence suggests that the plans are not implemented at all. Nor have they been reviewed by the affected agencies to check that the suggested treatments are possible or within the appropriate jurisdiction. Mr Incoll dealt with the issue in his common sense manner: “there’s no enabling legislation that says, once you’ve made that plan, here’s how it is going to be implemented”: T2154.4. This is consistent with Mr King’s evidence.
		5. Mr Lapsley was asked to provide an answer to this problem. He suggested that the first step is to modernize the legislative basis for fire management planning: T2315.29-2316.25.
		6. We accept Mr Lapsley’s characterization of Integrated Fire Management Planning as a “necessity” (T2320.2) and note his commitment in his new role as Emergency Management Commissioner to continue to drive the process.
		7. The evidence was that the mine regulator plays no role in integrated fire management planning at any level: White T1593.20-1594.2. Ms White said that was the responsibility of the VWA. Mr Niest of the VWA saw no particular problem with the VWA not being referred to as one of the “existing treatments” in the Regional Plan as he considered that the Plan was only concerned with the protection of critical infrastructure and not the protection of lives or health and safety in the workplace: T1850. It is submitted that this response demonstrates the actual gap in a practical sense of why integrated fire management planning is failing.
		8. Section 43 of the *Country Fire Authority Act 1958* imposes a general duty on municipal councils and public authorities to take all practicable steps to prevent the occurrence of fire and minimise the danger of the spread of fire. Before privatisation of the Hazelwood Mine, section 43 applied to the owner of the mine, the former State Electricity Commission of Victoria and its publicly owned successors.
		9. It is submitted that it is anomalous that section 43 no longer applies to the Hazelwood Mine merely because it is not publicly owned. We consider that all such essential State infrastructure facilities ought to be the subject of the section 43 duty. Mr Lapsley agreed with the suggestion that consideration should be given to extending the reach of section 43 in this way: T2319.14-16

***Filling the Regulatory Gap***

* + 1. As discussed above, the only safe conclusion to draw from the evidence of Ms White and Mr Niest is that there is currently a regulatory gap.
		2. The evidence at the Inquiry has raised a number of concerns about the manner in which the VWA has exercised its regulatory powers in relation to OHS at the Hazelwood mine concerning the risk of fires in the worked out parts of the mine:
			1. the large scale transfer of staff from the mine regulator to VWA that was recommended by the Pope report of 2006 did not occur: T1599;
			2. the transfer of files recommended by the Pope report apparently did not occur: T1767.30-T1768.4;
			3. the failure to monitor the implementation of the recommendations in the 2008 GHD report; and
			4. the less than thorough manner in which the question of compliance with regulation 5.3.23 by GDF Suez was examined or overseen.
		3. Both Mr Niest and Ms White were asked about the future of the regulation of fire in the mine.
		4. Mr Niest accepted that the Earth Resources Team at the VWA needs to be supported with systems safety specialists to assist them in judging whether risks are being properly controlled: T1858.19-24. He is committed to addressing this.
		5. Ms White suggested that the mine regulator, the VWA and the fire agencies could come together to discuss whether changes need to be made: T1643-4. Ms White also made a number of suggestions concerning the rehabilitation timetable while noting that rehabilitation can have an indirect effect of mitigating fire risk: statement at [189]; T1621.
		6. Ms White also accepted that the amendments to section 40 of the MR(SD) Act discussed above will require a licensee to engage in a “much broader assessment of risks than we currently have now with the work plan that I have to currently oversight”: T1638.6-9.
		7. We submit that the amendments to section 40(3) of the MR(SD) Act provide an opportunity for the mine regulator to re-engage with regulation of the risk of fire in the mine generally and in the worked out areas of the mine specifically. It has been an unfortunate and perhaps un-foreseen side effect of the transfer of **occupational** health and safety regulation to the VWA that the issue of **public** health and safety has been given far less priority than it should have been. The inclusion of risk management in approved work plans provides an opportunity for this to be addressed.
		8. It is relevant in this regard that the test in the new section 40(3)(c) of the MR(SD)Act is consistent with that used in the OHSA and the regulations: “so far as is reasonably practicable”. This should enable the mine regulator and the VWA to approach their respective regulatory tasks consistently.
		9. If there is an overlap between the areas of responsibility of the mine regulator and the VWA in this regard, that is far preferable to there being a gap.
		10. It is of concern that the new s. 40 of the MR(SD) Act may not be operational until December 2016. The people of the Latrobe Valley and Morwell in particular are entitled to see any regulatory gap closed at the earliest opportunity. It is unclear if existing work plans (such as GDF Suez’s) will need to be revised to meet the new requirements. Ms White informed the Inquiry that there will be a transitional phase: T1639.3. However, Ms White also noted that the changes will “flag a very strong intention to change the approach to work plans and, given that this is already in the public domain, I would consider that a mine operator would consider this in light of what they are doing today”: T1639.6-10.
		11. We submit that the Inquiry should ask the Victorian Government to bring forward the commencement date of section 16 of the Amendment Act so that it commences as soon as possible.
		12. We also consider that the changes present an opportunity for GDF Suez to give effect to the commitment made by Mr Graham at the Inquiry on 13 June 2014 to embrace a best practice continuous improvement approach throughout the mine including worked out areas rather than take a minimum compliance approach: T2272.13.

***Land use planning***

* + 1. There is a large gap between the fire protection policies outlined in the Latrobe Planning Scheme and the reality of land use in the vicinity of the Mine. There is no buffer zone between the Hazelwood Mine and the town of Morwell. The provisions of the Latrobe Planning Scheme that require a buffer zone of between 750 and 1,000 metres post date the approval in the 1940s of a new open cut mine adjacent to Morwell.
		2. There are at least three timber plantations within 1,000 m of the Mine licence area, each on the western side of the Mine and each capable of catching fire and throwing embers into the Mine. Although the Latrobe Planning Scheme currently provides that a permit is required for timber plantations in the Special Use Zone (SUZ1) and the Public Use Zone (PUZ1, the Council has no record of a permit being issued for any of the plantations. The evidence before the Inquiry provides no explanation for the existence of such an inconsistent land use on the western side of the Mine. Nor is there any explanation as to why Gippsland Water proceeded with a plantation in 1998 in the face of requests by the Mine’s owner to reconsider given the evident fire risk.
		3. Land use planning can be an effective means of reducing fire risk, but it is a long term measure and can only operate prospectively. While it may not be possible to do anything about timber plantations that are protected as an “existing use”, it should be possible to ensure that no further timber plantations are established in close proximity to open cut coal mines, in particular around their western perimeter.
	1. **Commendations**
		1. GDF Suez is commended for recognising, through the evidence of Mr Graham, that it needs to adopt a new approach to the management of the risk of fire in the worked-out batters of its Hazelwood Mine.
		2. The VWA is commended for recognizing that its Earth Resources Unit needs additional resources to fulfill its regulatory function under Part 5.3 of the *Occupational Health and Safety Regulations 2007*.
	2. **Criticisms**
		1. GDF Suez is criticised for not meeting its obligations under the *Occupational Health and Safety Regulations 2007* to:
			1. assess the risks associated with fire in the worked out batters of the mine in accordance with regulation 5.3.7(1);
			2. control those risks in accordance with regulation 5.3.8; and
			3. review those measures after the fire in a non-operational part of the mine in September 2008 as required by regulation 5.3.9(2)(b).
		2. GDF Suez should have implemented recommendation 6 of the GHD report into the September 2008 fire by conducting a risk assessment into the risk of fire in the non-operational parts of the Hazelwood Mine.
		3. GDF Suez, as an international company accredited to AS4810, should not have adopted the approach of minimum compliance to the risk of fire in the worked out batters of its Hazelwood Mine, but rather should have undertaken a full risk assessment of key risks to the mine and possible controls to minimise the likelihood or consequence of various risks occurring.
	3. **Recommendations**
		1. GDF Suez should ensure that it embraces a sound enterprise risk management framework that considerably enhances a more sophisticated corporate culture in respect of the management of risks.
		2. GDF Suez should engage reputable external consultants to conduct a thorough risk assessment of the likelihood and consequences of the risk of fires in the worked out batters of the Hazelwood Mine. The assessment must consider the most effective fire protection for the exposed coal surfaces in the worked out areas of the mine including:
			1. final rehabilitation;
			2. water coverage;
			3. coverage by earth or some other substance;
			4. treatment with a fire retardant; or
			5. a combination of these approaches.

GDF Suez should implement the suggestions in the report concerning controls and treatments to minimize the impact of the risk.

* + 1. GDF Suez should thoroughly review its ‘Mine Fire Service Policy and Code of Practice’ to ensure that, taking a risk assessment approach, it is suitable for mitigation, prevention and suppression of fires in all parts of the mine. The reviewed Policy should, as a minimum, address:
			1. The regular removal of vegetation from all surfaces within the mine (including worked out batters);
			2. The ability to prevent and suppress any fires that commence or burn into the worked out parts of the mine;
			3. The use of thermal detection and other imaging technologies by which fires can be spotted as soon as they commence;
			4. The ready availability of CAFS that are capable of operating in an open cut mine environment supported by camera technologies; and

should be incorporated into the approved work plan for the mine.

* + 1. From the date upon which section 16 of the *Mineral Resources (Sustainable Development) Amendment Act 2014* commences, the issues of fire prevention, mitigation and suppression should again be addressed in approved work plans under the *Mineral Resources (Sustainable Development) Act 1990*. This will mean that, from that time, both the DSDBI and the VWA are responsible for regulating the risk of fires in mines.
		2. The Emergency Management Commissioner should assume responsibility for Integrated Fire Management Planning in Victoria from 1 July 2014, and should sponsor legislation that will underpin Integrated Fire Management Planning and provide legislative authority for the development and implementation of regional and municipal fire management plans.
		3. Section 43 of the *Country Fire Authority Act 1958* should be amended so that it applies to essential State infrastructure such as the Hazelwood Mine and Power Station, whether they are in private or public ownership.
		4. The Department of Transport, Planning and Local Infrastructure and the Latrobe City Council should review the Latrobe Planning Scheme to ensure that, so far as is reasonably practicable, it minimises the risk of embers from external rural fires, in particular in timber plantations, into open cut coal mines in the Latrobe Valley.

Dated: 17 June 2014

Melinda Richards SC
Peter Rozen
Counsel Assisting the Inquiry

1. Exhibit 15, Statement of Lawrence Jeremiah, paragraphs 29 and 30; T469:15 (Jeremiah); Exhibit 1, Statement of Craig Lapsley, paragraph 73, T39:30 (Lapsley). [↑](#footnote-ref-1)
2. Exhibit 15, Statement of Lawrence Jeremiah, paragraph 23; T463:6 (Jeremiah); T712:2 (Lapsley). [↑](#footnote-ref-2)
3. Exhibit 7, Statement of David Shanahan, paragraph 17; T215:8 (Shanahan); Exhibit 10, Statement of Steven Harkins, paragraph 36; T323:3 (Harkins); T384:24 (Faithfull); T636:25 (Roach); T641:8-642:4 (Roach). [↑](#footnote-ref-3)
4. T636:25 (Roach); T641:8-642:4 (Roach). [↑](#footnote-ref-4)
5. cf Exhibit 15, Statement of Lawrence Jeremiah, [105] and Attachment 12; T472:13-474:31. [↑](#footnote-ref-5)
6. Exhibit 11, Emergency Response Plan at p 12; Garry Wilkinson in QLD – T358:7 (Prezioso) Rob Dugan in Mallacoota – Exhibit 13, Statement of Robert Dugan, paragraph 48; T358:9 (Prezioso); Stan Kemsley not on site T348:10 (Prezioso); Ian Wilkinson responsible - T358:12 (Prezioso); T307:10 (Harkins), T329:29 (Harkins); [↑](#footnote-ref-6)
7. Exhibit 11, Emergency Response Plan [2.5] at p 7; Exhibit 10, Statement of Steven Harkins, paragraph 66; T338:15 (Harkins); T366:6 (Prezioso) 000 – T368:3 (Prezioso); T649:11 (Roach) [↑](#footnote-ref-7)
8. T371:12 (Prezioso); Exhibit 10, Statement of Steven Harkins, paragraph 90; T386:28 (Faithful). [↑](#footnote-ref-8)
9. Exhibit 22, Statement of Robert Barry, paragraph 28.2; Exhibit 90, Statement of Richard Polmear, paragraph 18 [↑](#footnote-ref-9)
10. Emergency incidents - Exhibit 38, Supplementary Statement of Paul Torre dated 30 May 2014, paragraph 4; T949:14 (Torre); data for CHO – Exhibit 46 Statement of Rosemary Lester, paragraphs 43 and 58; T1147:8 (Lester) ; data for incident controllers – Exhibit 18, Statement of Simon Bloink dated 23 May 2014, paragraph 15; Exhibit 21 Statement of Costa Katsikis dated 27 May 2014 paragraph 29. [↑](#footnote-ref-10)
11. CO Protocol – Exhibit 32 Statement of John Merritt, paragraph 33(b) attachment EPA.0001.007.0041; Exhibit 46 Statement of Rosemary Lester, paragraph 55, attachment 8 FSC.006.007.0020; HMD Plan – Exhibit 26, Supplementary Statement of Craig Lapsley dated 22 May, paragraph 19, attachment FSC.0011.001.0017; differences – T2297:23 (Lapsley); peer review – T846:18 and T847:7 (Merritt) [↑](#footnote-ref-11)
12. Email – Exhibit 47, spot readings - T1160:9 (Lester); weather forecast/high levels- Exhibit 21 Statement of Costa Katsikis dated 27 May 2014 paragraph 26; T540:12 (Katsikis). [↑](#footnote-ref-12)
13. Temporary relocation late - T1176:6 (Lester); T1947:29 (Wilson); T1890:6 (Jackman); duration of fire – Exhibit 3 Situation Report for State Control Centre for 12 February 2014 FSC.0006.004.0112; day by day – T1180:10 (Lester); available indicative air quality – exhibit 47 email sent 16 February 2014 between Dr Torre and Ms Lynch [↑](#footnote-ref-13)
14. Exhibit 46 Statement of Rosemary Lester, paragraph 88 T1182:23; T2301:10 (Lapsley); T1947:2 (Wilson); Exhibit 86 Maps provided by John Merritt in meeting with Latrobe City Council on 28 February 2014 [↑](#footnote-ref-14)
15. Report of Lachlan Drummond section 6.2.3; Report of James Macnamara page 30; Exhibit 53 Statement of Merita Tabain dated 27 May 2014 paragraphs 110 and 111; Exhibit 71 Statement of Robert Jackman paragraphs 11-13. [↑](#footnote-ref-15)
16. Exhibit 61 – Statement of Lachlan Drummond [6.3.7], [6.4.2] [↑](#footnote-ref-16)
17. Campbell T1240:22 – T1241:30; T1242:6-18 [↑](#footnote-ref-17)
18. Exhibit 50 – expert report of James Macnamara [4]; Exhibit 51 – expert report of Lachlan Drummond [6.3]-[6.4]; Exhibit 52 – Joint report of Macnamara and Drummond; Exhibit 53, Statement of Merita Tabain, Attachment 64 – Latrobe Valley air quality, 24 February 2014 – VPOL.0003.001.0217; Exhibit 46 – Statement of Rosemary Lester, Attachment 7 – Latrobe Valley coal mine fires – Community information, February 2014. [↑](#footnote-ref-18)
19. Exhibit 46 – Statement of Rosemary Lester, [84]-[88]; Attachment (Tab 18.65 (EPA.0001.001.0035)) and Attachment 19; Tabain T1365:8-18; Wilson T1947:19-27; Exhibit 43 - Statement of Vicki Hamilton [14] [↑](#footnote-ref-19)
20. Exhibit 50 – expert report of James Macnamara [2.1]; Exhibit 51 – expert report of Lachlan Drummond [6.4.5]; Exhibit 52 – Joint report of Macnamara and Drummond [(b)]; Exhibit 29 – Second statement of Steven Harkins, [58] [↑](#footnote-ref-20)
21. Relocation of Commercial Road Primary/Sacred Heart: Exhibit 36 – statement of Nicholas Pole, [51]-[53], [86]; temporary enrolment for other schools: Exhibit 36 – statement of Nicholas Pole, [34]-[35]; Mitchell T1430:11-24 [↑](#footnote-ref-21)
22. Hall T1491:16-20; T1497:6-17; Exhibit 43 - Statement of Vicki Hamilton [17] [↑](#footnote-ref-22)
23. Mitchell T1454:11-18; T1458:21-28; T1460:9-18; Hall T1502:9-1503:20; Exhibit 43 - Statement of Vicki Hamilton [18]- [20] [↑](#footnote-ref-23)
24. See the Report of the Coronial Inquiry into the deaths of five volunteer firefighters at Linton (2002) at chapter 23; Final Report of the 2009 Victorian Bushfires Royal Commission, chapter 3.3. [↑](#footnote-ref-24)
25. See VBRC Report at p 135. [↑](#footnote-ref-25)
26. See also the report of Professor Don Campbell at p. 8; statement of Dr Lester at [50] [↑](#footnote-ref-26)
27. Report of Robert Golec dated 13 February 2014 (UFU submission) [↑](#footnote-ref-27)
28. *Whittaker v Delmina Pty Ltd* (1998) 87 IR 268 (VSC, Hansen J); *R v Associated Octel Ltd* [1996] 4 All ER (HL); *R v Mara* [1987] 1 All ER 478. [↑](#footnote-ref-28)
29. Our emphasis. Ms White explains at para [183] of her first statement that these amendments give effect to recommendation 19 of the 2012 Report of the Economic Development and Infrastructure Committee entitled ‘Inquiry into Greenfields Mineral Exploration and Project Development in Victoria’ [↑](#footnote-ref-29)