



THE KILMORE EAST FIRE

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The Kilmore East fire of 7 February 2009 burned across the Shires of Nillumbik, Mitchell and Yarra Ranges as well as the City of Whittlesea, about 85 kilometres north of Melbourne. The fire started at about 11:47, on top of a rocky hill between two gullies near Saunders Road in Kilmore East. The fire behaviour was extreme. Burning initially in a south-easterly direction, the fire crossed the Hume Highway and went on through Wandong on its way towards Mt Disappointment. The terrain and fuel where the fire burned promoted long-distance spotting: as the main fire front progressed across Mt Disappointment, fires were also reported at Wallaby Creek, Humevale, Strathewen, St Andrews, Steels Creek, Dixons Creek and Yarra Glen, and in the Healesville area.

After the south-westerly wind change, which passed through the fire ground between 17:40 and 19:00, the eastern flank of the fire became the front and the fire behaviour intensified. Almost immediately the head of the fire impinged on Kinglake, Kinglake West, Clonbinane, Steels Creek, Chum Creek and Strathewen, then it progressed towards Flowerdale, Hazeldene, Castella and Glenburn.

In all, 119 people died and 1,242 homes were destroyed. The combined area burnt by the Murrindindi and Kilmore East fires, which later merged, was 168,542 hectares. The Kilmore East fire alone burnt 125,383 hectares.<sup>1</sup> Figure 5.1 shows the extent of the Kilmore East fire.

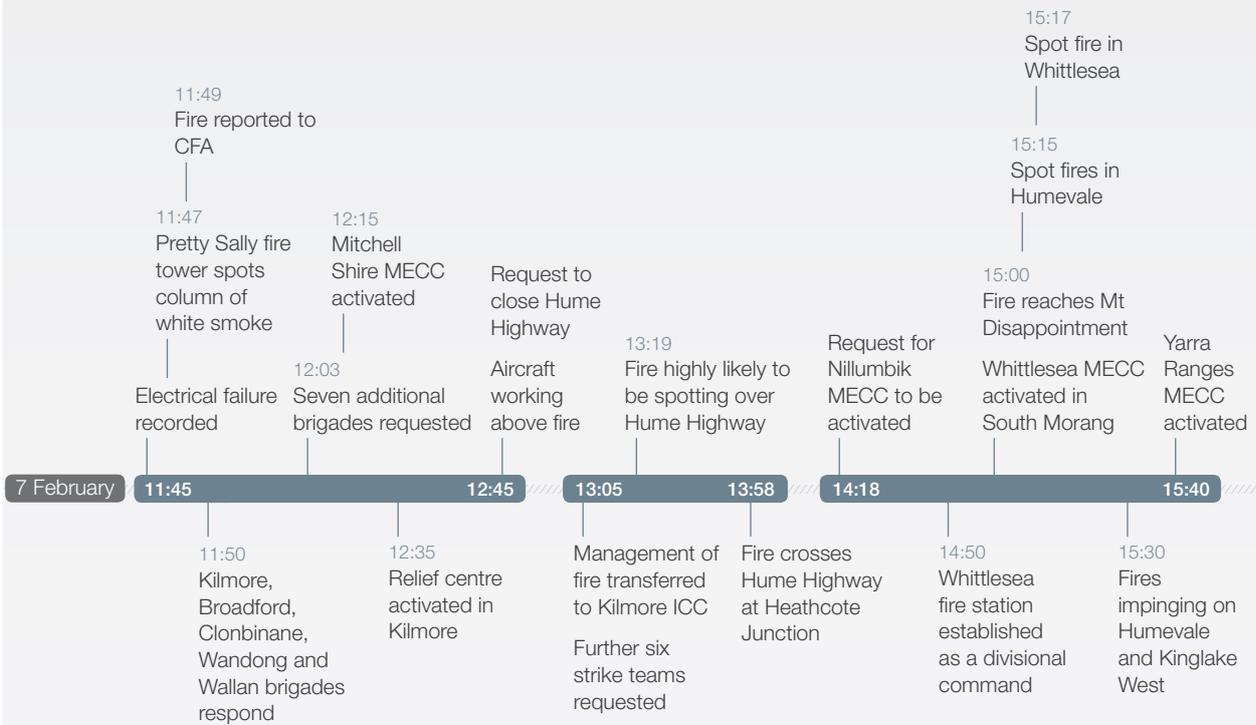
## OVERVIEW

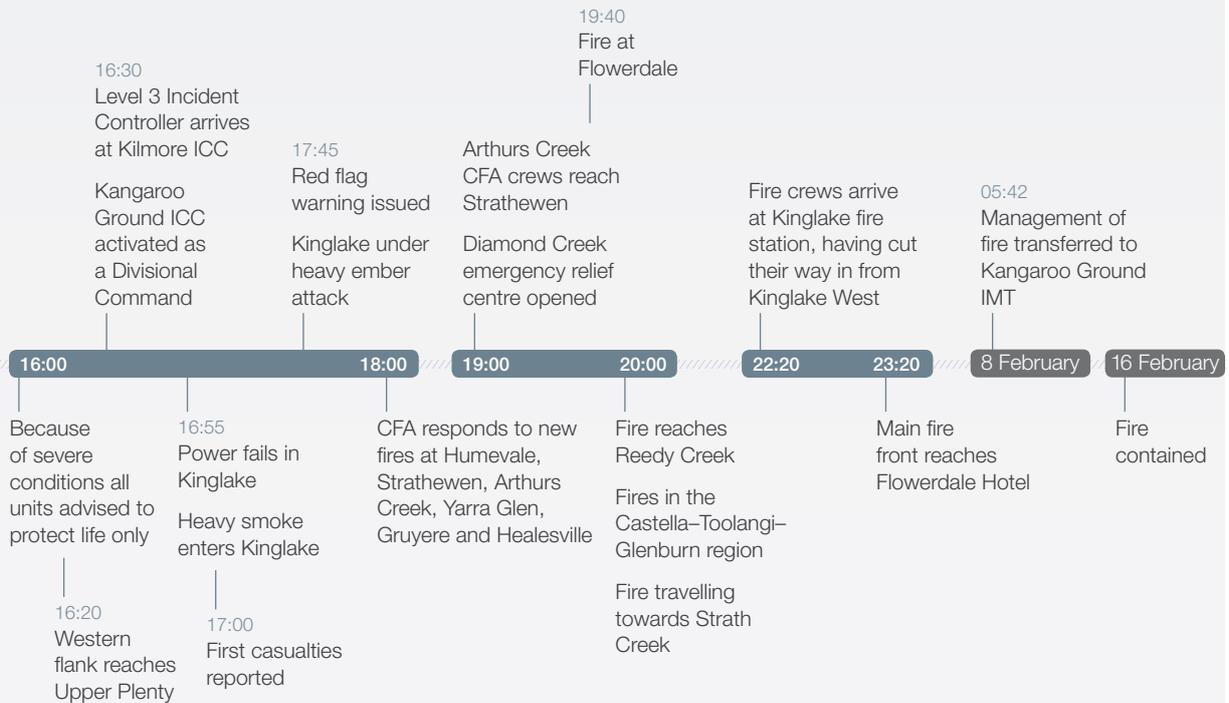
<b>Maximum temperature</b>	The maximum temperature recorded was 42.5°C at Kilmore Gap automatic weather station at 14:41. <sup>2</sup>
<b>Minimum relative humidity</b>	The minimum relative humidity recorded was 8.9 per cent at Kilmore Gap AWS at 16:00. <sup>3</sup>
<b>Wind</b>	The maximum winds recorded before the change were north-westerly at 72 kilometres an hour at Kilmore Gap AWS at 14:13. <sup>4</sup> The wind change was recorded by the Kilmore Gap AWS at 18:10, from the west at 17 kilometres an hour. <sup>5</sup> The maximum winds recorded after the change were south-westerly at 31 kilometres an hour at Kilmore Gap AWS at 18:19. <sup>6</sup>
<b>Fire danger index</b>	The maximum Grass Fire Danger Index was 267 at Kilmore Gap AWS at 14:13. <sup>7</sup>
<b>Cause</b>	Electrical failure. <sup>8</sup>
<b>Fatalities</b>	One hundred and nineteen fatalities. <sup>9</sup>
<b>Casualties</b>	Two hundred and thirty-two casualties. <sup>10</sup>
<b>Houses destroyed</b>	1,242 houses. <sup>11</sup>
<b>Overall area burnt</b>	125,383 hectares. <sup>12</sup>
<b>Firefighting resources</b>	On 7 February, 938 CFA, 32 MFB and 107 NEO personnel attended the fire. They were supported by 92 CFA appliances, 16 DSE appliances, 9 MFB appliances and 11 aircraft. <sup>13</sup>



## Kilmore East 7–16 February

The following time line summarises events relating to the Kilmore East fire. For the most part, the times given are approximate. Further details about the events are provided in the accompanying narrative.





## 5.1 SEQUENCE OF EVENTS

### 5.1.1 PREPARATION

Kilmore was one of 20 level 3 incident control centres pre-designated across the state in anticipation of the conditions forecast for 7 February. There were two such centres in Country Fire Authority Region 12—at Kilmore and Alexandra. As with other fires, the pre-designated level 3 ICCs were meant to be ready for a ‘warm or hot start’; this meant that personnel were to be physically in place and that facilities and equipment had been tested and were ready for use.<sup>15</sup>

Both CFA Chief Officer Mr Russell Rees and CFA State Duty Officer Mr Gregory Paterson believed Kilmore ICC was ready for a ‘hot start’ as a level 3 ICC on 7 February, with the main incident management team staff—including an Incident Controller and operations, planning and logistics staff—in position.<sup>16</sup>

The evidence before the Commission shows, however, this was not the case. On 6 February Mr Peter Creak, the Region 12 CFA Operations Manager and the person responsible for operational planning, preparedness and response, emailed the incident management team planner—a formatted tabulation of positions, names and dates of availability for Region 12—to the CFA State Coordinator. The planner did not identify or allocate IMT personnel to particular ICCs in Region 12. It did, however, show that for 7 February there were eight Incident Controllers, nine operations officers, six planning officers and seven logistics officers available, along with a number of other key staff members and people in more junior positions. CFA career and volunteer officers and Department of Sustainability and Environment officers were also listed.<sup>17</sup>

Mr Creak told the Commission it was not possible to have all level 3 ICCs in the north-east of the state prepared for a hot start: ‘... simply we don’t have the numbers of incident management team personnel to pre-position people into every control centre that is identified in north-east Victoria’. He said it was well understood by both DSE and CFA in the north-east—and, he believed, by the CFA at the state level as well—that the region did not have the resources to prepare each level 3 ICC for a hot start. As a result, despite there being sufficient staff for the Kilmore ICC to manage the Kilmore East fire and the Alexandra ICC to subsequently manage the Murrindindi fire, level 3 staff were not identified for these locations until after the outbreak of these fires.<sup>18</sup>

Mr Creak said the preparations made in the region were appropriate and consistent with usual practice. It appears this did not, however, include physically positioning any IMT staff at specific ICCs in the region; nor did it include a request for additional personnel, which might have helped with physically positioning IMT staff at specific ICCs. Initially at least, senior personnel at the integrated Emergency Coordination Centre were unaware that the Kilmore ICC was not staffed on the morning of 7 February.<sup>19</sup>

Having provided the IMT planner to senior CFA officers on 6 February, Mr Creak considered he had informed senior management at the iECC that the Kilmore level 3 IMT was not pre-planned and not ready for a hot start.<sup>20</sup> A consequence of this lack of pre-planning was that, instead of the Kilmore ICC being ready to take over management of the Kilmore East fire immediately, a considerable period elapsed before the centre was staffed by suitably qualified personnel.

The Kangaroo Ground ICC is about 50 kilometres south of Kilmore, in CFA Region 13. It is a permanent ICC facility (unlike the Kilmore ICC, which used a CFA station facility), with equipment such as computers and other IT facilities and provision for the necessary IMT staff functions, despite the facilities not being as up to date as those in other permanent ICCs in Victoria.<sup>21</sup>

The Kangaroo Ground ICC had been set up for a hot start as a level 3 ICC on 7 February. Incident Controller Mr Jason Lawrence, a CFA operations officer, was present, along with Mr Rocky Barca from Parks Victoria as Deputy Incident Controller. Planning, operations and logistics staff were also there, as were other personnel as back-up and to support the Information Unit.<sup>22</sup>

In the short term Victoria Police and municipal authorities made specific preparations for 7 February. Among the steps taken were the following:

- The Yarra Ranges Divisional Emergency Response Coordinator activated the Knox Divisional Operations Centre, placed the municipal emergency coordination centres on standby, and arranged for police liaison officers to be in position in the pre-designated incident control centres at Belgrave and Woori Yallock and at the CFA's Region 13 headquarters.<sup>23</sup>
- All municipal emergency response coordinators were asked to liaise with their respective municipal emergency resource officers to ensure that the municipal emergency coordination centres were in a high state of preparedness for the weekend. On 5 February the Nillumbik MECC was prepared for activation. The Yarra Ranges MECC was ready for activation on the morning of 7 February.<sup>24</sup>

Table 5.1 summarises the state of preparedness for the East Kilmore fire.

**Table 5.1 The Kilmore East fire – IMT preparedness**

<b>Pre-designated level 3 ICC</b>	Yes <sup>25</sup>
<b>Pre-formed IMT at ICC</b>	No <sup>26</sup>
<b>Pre-identified level 3 IC</b>	No <sup>27</sup>
<b>Pre-identified IMT members</b>	Yes though personnel were not allocated to particular roles <sup>28</sup>
<b>Time fire started</b>	11:47 <sup>29</sup>
<b>Time full IMT in place</b>	16:30 <sup>30</sup>
<b>Safety adviser appointed</b>	No <sup>31</sup>

## 5.1.2 7 FEBRUARY

### Origin and cause

The Kilmore East fire started at about 11:47 at the top of a rocky hill between two gullies near Saunders Road in Kilmore East. A single-wire earth return, or SWER, electricity line (the conductor) ran across the gullies. The area where the fire started was undulating pasture interspersed with native vegetation alongside cleared and standing forestry plantations.<sup>32</sup> The conductor formed part of the Pentadeen Spur power line.

The fire started after the conductor between poles 38 and 39 failed and the live conductor came into contact with a cable stay supporting pole 38. This contact caused arcing that ignited vegetation near the base of pole 38. An electrical fault was recorded at 11:45.<sup>33</sup>

The conductor failed as a result of fatigue on the conductor strands very close to where a helical termination was fitted to the conductor at pole 39. (A helical termination is a device used in electricity distribution; it is wound helically around the conductor and grips it, keeping tension in the line and holding the line off the ground.) The fatigue of the conductor strands was partly caused by the helical termination being incorrectly seated in a thimble, so that it was jammed between the thimble and a clevis device at pole 39, causing stress to the conductor. (The thimble and clevis attach the helical termination to the insulator, which in turn is attached to the pole. The thimble is horseshoe-shaped and pivots around a pin; it is held in place by the clevis.) The conductor was probably 43 years old.<sup>34</sup> Further information about electricity terminology is provided in the Glossary.

A line inspection carried out in February 2008 had failed to identify the incorrectly seated helical fitting.<sup>35</sup>

Figure 5.2 shows a jammed helical termination.

**Figure 5.2 A jammed helical termination**

Source: Exhibit 525 – HRL Technology Report – Kilmore East Fire.<sup>36</sup>

Automatic circuit reclosers, or ACRs—circuit breakers that open to break the circuit when a fault is recorded and then reclose the circuit to restore power—had been installed on the Pentadeen Spur power line. The settings could have been changed manually to suppress the reclose function entirely. The consequence of the ACR not being suppressed on 7 February was that it reclosed three times before the current was stopped by the ACR tripping to lockout, resulting in plasma at a temperature of 5000°C being ejected on four separate occasions (including once before the first trip of the ACR) for a total of 3.6 seconds.<sup>37</sup>

The operation of ACRs and the age and inspection of electrical assets are discussed in detail in Chapter 4 of Volume II.

### Initial fire run

At 11:47 Mr Peter Coleman, a fire tower observer at Pretty Sally tower, spotted a column of white smoke about 30 to 40 metres high coming from behind a hill in the direction of Saunders Road, Kilmore East. The fire was reported to the CFA at 11:49.<sup>38</sup>

Following a pager alert at 11:50, a ‘hot day’ response of five brigades—Kilmore, Broadford, Clonbinane, Wandong and Wallan—was dispatched, along with a number of private units. Clonbinane captain Mr Ross Hibbert was first on the scene. He asked for additional resources. At 12:03 the Seymour Group Headquarters paged an additional seven brigades.<sup>39</sup>

The Kilmore brigade responded within four minutes of notification of the fire. While still in Kilmore township, 5 kilometres from the fire, the crew saw a very large, high column of smoke. They recognised the need for additional resources, and these were promptly provided.<sup>40</sup>

Mr Russell Court, crew leader on Kilmore Tanker 1, estimated he was in the area of the fire’s origin within 10 minutes. He described a strip of fire 80 to 100 metres wide heading south towards a hill where two tongues of fire were burning—one running south to Saunders Road and the other east towards Wandong.<sup>41</sup>

Within minutes of ignition, the Kilmore East fire could not be contained. Mr Court said in evidence, ‘I’ve never seen fire behaviour like it’. Despite this, those charged with trying to control the fire stayed to fight, often risking their lives, and were able to save houses and other people’s lives. A number of spot fires were also suppressed by initial attack, among them some at Humevale and near Arthurs Creek.<sup>42</sup>

### Fire run to the Hume Highway

Firefighters tried, unsuccessfully, to stop the fire at Saunders Road. When it crossed the road, about 15 minutes after fire crews arrived, it was spotting 250 metres ahead of itself. From Saunders Road the fire travelled through about 200 hectares of plantation logging slash (the debris left by logging). With this fuel, the rate of the fire's spread towards the Hume Highway was estimated to be 2.5 kilometres an hour.<sup>43</sup>

Following a request from the police Forward Commander, Inspector Ross Smith, at 12:15 Senior Sergeant Brett Murphy arranged for the Mitchell Shire Municipal Emergency Coordination Centre to be activated at the shire offices in Broadford. At 12:35, again at the request of Inspector Smith, a relief centre was activated in Kilmore. At 12:45 a request to close the Hume Highway was made: it was thought that once the fire entered pine plantations on the western side of the highway it would be impossible to stop.<sup>44</sup>

By this time aircraft had been deployed. Because of the fire conditions, however, the aircraft were ineffective in suppressing the fire and were mainly used for asset protection. The aircraft were restricted from attacking the head of the fire but were extremely useful in attacking the southern flank, including around Wandong. They worked in difficult conditions. One of them, working near Wandong, struck a power line; it landed safely but was grounded for repairs. Mr Gregory Murphy, Kilmore CFA brigade captain, remarked that without the aerial firefighting effort more losses would have been sustained in and around Wandong.<sup>45</sup>

### Incident control: handover to Kilmore ICC

Initially the fire was managed from Seymour Group headquarters by Group Officer Noel Arrant. At 12:05 Mr Creak, who was based at the Seymour Regional Emergency Coordination Centre, contacted Mr Murphy, saying the Kilmore fire station was to become the incident control centre for the Kilmore East fire and Mr Murphy was to be Incident Controller.<sup>46</sup>

Mr Murphy became Incident Controller at 13:05, about an hour after having been advised to assume the position. A short time later he asked for a further six strike teams to attend the fire. Mr Murphy was a level 2—not a level 3—Incident Controller. He had no expectation that he would be placed in the position of Incident Controller for a major level 3 fire and had thought that, if he was called upon, his role would be that of a level 3 operations officer.<sup>47</sup>

Once in the position of Incident Controller, Mr Murphy started establishing an incident management team and appointing people to specific positions in the team. He had not received a copy of the CFA Chief Officer's list of endorsed level 3 personnel; nor had he received the IMT planner prepared by Mr Creak before 7 February. As a result, he was unaware of the qualifications and endorsements of people arriving at the Kilmore ICC and appointed to key positions some people who were not level 3 qualified. Indeed, in some instances less qualified personnel were supervising more qualified personnel; for example, a level 3-qualified Incident Controller was appointed to the Planning Unit.<sup>48</sup>

The confusion extended up the chain of command. Mr Creak was not aware that a level 3 Incident Controller was working in the Planning Unit, so he deployed Mr Stewart Kreltszheim, a level 3 Incident Controller, from Mansfield to Kilmore to take over from Mr Murphy. Mr Kreltszheim did not arrive at Kilmore until 16:30, more than four-and-a-half hours after the fire had started.<sup>49</sup>

The staggered arrival of personnel to fill roles in the IMT meant that, as well as maintaining an overview of the developing fire and carrying out his Incident Controller duties, Mr Murphy had to brief newly arriving functional heads and mentors.<sup>50</sup>

Department of Sustainability and Environment park ranger Mr Anthony Fitzgerald was told of the Kilmore East fire at about 13:00. He contacted DSE duty officer Mr Steve Grant and asked who was in control of the fire. Mr Grant told him the Kilmore ICC was dealing with the fire, 'but they are not functioning very well—you are on your own'. Mr Fitzgerald understood this to mean that no resources would be available to him in responding to the fire.<sup>51</sup>

### Fire run to Mt Disappointment

At 13:19 the fire was recorded as highly likely to be spotting over the Hume Highway. It crossed the highway at Heathcote Junction at 13:58. At that time it had multiple tongues, and the width of the area affected was about 5 kilometres, between Clonbinane Road and the north-eastern railway line.<sup>52</sup>

The combination of a high-intensity fire in the plantation logging slash and the presence of pockets of native vegetation beside the Hume Highway and on the median strip provided the quantity and arrangement of fine fuel to carry the fire across the highway.<sup>53</sup>

Once it crossed the highway its behaviour changed. Mr Fabian Crowe, a CFA fire investigator, described the change in terms of it being as though the slopes of Mt Disappointment ‘welcomed’ the fire. As the fire entered a forested area near Shiels Road, Clonbinane, it increased in intensity and continued its run to the south-east, up the north-west-facing slopes of the Great Dividing Range towards Mt Disappointment. Mr Kenneth Williamson, captain of the Whittlesea brigade, observed the fire as it arrived at Wandong: he said it was erratic and out of control.<sup>54</sup>

Kilmore Tanker 1 was on the ground in Wandong fighting the fire. Mr Court described the crew’s experience:

... when the front came through there was nothing we could do. It was just out of control. We tried everything but it was just hopeless. The visibility was terrible, the smoke was one thing but the wind had blown up all the dirt as well. By that stage we weren’t cutting fences anymore—we were just driving straight through them.<sup>55</sup>

The crew stayed to fight the fire for about 25 minutes before members started having difficulty breathing; they described the fire as sucking up the oxygen from the air.<sup>56</sup>

Between Wandong and Clonbinane several tongues of fire merged and headed south-east towards the settlement of Yabamac and Wandong Regional Park. In a forested area between Wandong and Clonbinane Mr Williamson estimated the wind was 100 kilometres an hour.

Senior, experienced CFA volunteer officers had inspected fuel loads in and around Mt Disappointment, Humevale, Strathewen, Kinglake and Glenvale three to four weeks before 7 February and described them as extreme. They were ‘horrified’ by the fuel loads—40 to 50 tonnes a hectare—and knew they would be unable to control a fire in these areas.<sup>57</sup>

Mr John Dixon, a CFA volunteer with over 30 years of CFA firefighting experience, described the fire as moving south at a speed greater than he had ever seen. He saw the fire before the wind change not as a front but as a fire with considerable spotting activity. And the spot fires merged to create fires ahead of the main fire: ‘the fire would then consume everything in its path as the main fire moved through’.<sup>58</sup>

At 14:18 Senior Sergeant John Scully, the Municipal Emergency Response Coordinator for Nillumbik Shire, asked that the Nillumbik Municipal Emergency Coordination Centre be activated.<sup>59</sup>

At about 14:40 the Deputy Incident Controller at Kangaroo Ground, Mr Barca, predicted that the fire would reach Kinglake, Kinglake West, Strathewen, St Andrews, Steels Creek, Flowerdale, Humevale and surrounding towns and areas. After being unable to contact Mr Creak and Mr Murphy and ascertaining that no threat messages had been issued, Mr Barca asked one of the information officers at the Kangaroo Ground ICC to prepare a threat message.<sup>60</sup>

At about 14:50, as the fire continued to head south-east, Whittlesea fire station was established as a Divisional Command.<sup>61</sup>

### Fire run to Humevale and Kinglake West

The fire reached Mt Disappointment at about 15:00. As the main fire front progressed up the mountain, spot fires were reported at Wallaby Creek, Humevale, Strathewen, St Andrews, Steels Creek, Dixons Creek and Yarra Glen and in the Healesville area. The nature of the fuel the fire was consuming and the extreme weather conditions meant that spotting was occurring 20 and 40 kilometres ahead of the main fire front. In some cases these spot fires developed into major fires in their own right.<sup>62</sup>

The Municipal Emergency Response Coordinator for the City of Whittlesea was Senior Sergeant Tony Higgins. Mr Neill Hocking, Director of Infrastructure and Technology at Whittlesea Council, stated that Senior Sergeant Higgins became concerned during the afternoon that Whittlesea would be affected by the Kilmore East fire and asked that the Municipal Emergency Coordination Centre be activated. This was done in South Morang at 15:00, and the MECC was attended by various agencies and personnel, including a liaison officer from each of the CFA, the Department of Human Services and SP AusNet.<sup>63</sup>

A primary concern for Senior Sergeant Higgins was the large number of people camped at the Whittlesea showgrounds for a music festival. There was much discussion between the MECC and Victoria Police about whether the campers should be told to remain at the showgrounds or be asked to evacuate. The campers' safety had to be balanced against the CFA's wish to use the showgrounds as a crew staging area. Ultimately, the campers were asked to leave the showgrounds, and the area became a CFA staging area.<sup>64</sup>

The City of Whittlesea activated emergency relief centres in Whittlesea and South Morang to cater for the hundreds of evacuees from the Kinglake area.<sup>65</sup>

Personnel at the Kangaroo Ground ICC were aware that the warnings being issued for the fire were inadequate. At 15:02 the Kangaroo Ground Incident Management Team drafted an alert message saying the Kilmore East fire might have an impact on the communities of Kinglake West, Kinglake, Pheasant Creek, Strathewen, Arthurs Creek, Doreen, Yan Yean, Woodstock, Mernda, Nutfield, Mittons Bridge, Hurstbridge, St Andrews, Panton Hill, Smiths Gully and Christmas Hills.<sup>66</sup>

That alert message constitutes an accurate and timely warning about the potential of the Kilmore East fire. It demonstrates what could have been achieved by way of information and warning to people in the path of the fire. But it was never released. The Kangaroo Ground Incident Controller, Mr Lawrence, explained that this was because '... the fire was being controlled by the Kilmore ICC, and it was their responsibility to issue those messages, be they urgent threat messages or otherwise'.<sup>67</sup>

As the fire progressed up Mt Disappointment between 15:15 and 15:45, it entered forest dominated by mountain ash and other tree species prone to causing long-distance spotting. The fire burned with great intensity in the mountain ash areas, where trees were more than 50 metres high. The foliage in the crowns of trees that remained was charred and distorted, suggesting flame heights greater than 50 metres. Burning ribbons of bark were lifted by convection forces and carried considerable distances under the influence of the strong north-westerly wind.<sup>68</sup>

### **Fires in Humevale and Kinglake West**

At 15:17 a spot fire was reported on the corner of Jacks Creek and Humevale Roads in Whittlesea. Five minutes later a second spot fire was reported, 500 metres north of the first one. Firefighters contained both fires to an area of less than 1 hectare.<sup>69</sup>

A third spot fire began at 15:26, about 250 metres into the Toorong Reservoir Park – Melbourne Water catchment. This fire was contained by firefighters, including Melbourne Water crews, to less than half a hectare. During the next half-hour spot fires continued to break out.<sup>70</sup>

The terrain in Humevale is characterised by steep slopes and gully systems that feed north towards the Hume Range and the settlement of Kinglake West. This complex landscape moved the fire in several directions: some of the spot fires ran northward up the gully systems towards Kinglake West; some ran up to the ridge tops from north-west to south-east; and some ran up to the ridge tops from south-east to north-west.<sup>71</sup>

Information officer Ms Leonie Hunter arrived at the Kilmore ICC from Alexandra at approximately 15:30. She was placed away from the rest of the incident management team and did not have a computer or printer, limiting her ability to obtain the information she needed to issue suitable warnings.<sup>72</sup>

At 15:40 Senior Sergeant Vin Butera, the Municipal Emergency Response Coordinator for Yarra Ranges, was told there were 'fires at Kinglake' with the 'potential to impact upon Yarra Glen'. At this point, in conjunction with the Municipal Emergency Resource Officer, Senior Sergeant Butera activated the Yarra Ranges Municipal Emergency Coordination Centre.<sup>73</sup>

Just before 16:00 Mr Murphy spoke with Mr Barca; shortly after that he had a conversation with Mr Lawrence. Mr Murphy said he was not informed during either conversation of spotting activity at St Andrews or Strathewen, of fires developing within the Kangaroo Group ICC footprint, or that threat messages had been drafted at Kangaroo Ground and were awaiting his approval for release. At 16:00 Mr Rodney Holland, Whittlesea Divisional Commander, advised all units by radio to protect life only, not assets, because of the severe conditions.<sup>74</sup>

At 16:10 Ms Hunter began preparing an urgent threat message for communities such as Clonbinane, Mt Disappointment, Kinglake, Heathcote Junction, Upper Plenty, Humevale, Reedy Creek and Strath Creek, but the message could not be issued from the Kilmore ICC because the fax machine was not operating. As discussed later in this chapter, this urgent threat message was never uploaded to the CFA website.<sup>75</sup>

While the fire front moved across Mt Disappointment its western flank moved laterally towards Lords and Mahadys Roads in Upper Plenty. It reached this area at about 16:20. Two people died in Upper Plenty.<sup>76</sup>

As a result of the spotting, between 15:30 and 17:00 at least two major fires were impinging on the Humevale and Kinglake West settlements—one approaching from the Mt Disappointment area and one from within Humevale itself. The effect of local terrain was such that the Humevale fire moved north towards Kinglake West, despite the north-westerly wind.<sup>77</sup>

Six people died in Humevale, four of them in Humevale Road. Another 16 people died in Kinglake West, 10 of them in the Kinglake West section of Pine Ridge Road and the remainder in Coombs Road. A further five people died in the Strathewen section of Pine Ridge Road.<sup>78</sup>

Image 5.1



Source: Courtesy of Herald & Weekly Times.

### **Strathewen and St Andrews North**

Between 15:30 and 17:30 spot fires developed in Strathewen and St Andrews North, up to 22 kilometres ahead of the main fire front. The fires at Mt Disappointment and Humevale were probably the cause of these fires.<sup>79</sup>

Like the fire witnessed at Humevale, the fires at Strathewen and St Andrews North moved in several directions. Although the fires generally ran towards the south-east under the influence of the prevailing winds, some ran towards the north because of local topography and the convection column the fire had generated. Fourteen people died in St Andrews.<sup>80</sup>

At times spot fires seemed to come from nowhere. Reports suggested the fire appeared to jump 10 to 15 kilometres and then take off again like the main fire. From the perspective of the Kangaroo Ground tower before the wind change, it appeared as though the spot fires had become one big front about 30 kilometres long.<sup>81</sup>

At about 16:30 tankers from Whittlesea and Doreen, which were trying to protect buildings at 870 Whittlesea–Yea Road in Humevale, issued urgent mayday calls. This property had been considered a relatively safe place for people to go to during a fire since it was on about 40 hectares of cleared land and paddocks. At much the same time, members of a strike team working further along the road were surprised by a sudden increase in erratic fire behaviour and took shelter in their vehicles, along with three residents. The strike team leader's car was destroyed. Most of the crew members were unharmed, although some suffered minor injuries and one received superficial burns and suffered from smoke inhalation.<sup>82</sup>

### **The Kinglake West back-burn**

At about the same time as fires were approaching the Parks Victoria office in Kinglake National Park, Mr Fitzgerald directed officers to light a back-burn. The aim of the back-burn was to reduce the fuel between the advancing fire front and the Parks Victoria office and surrounding houses, in 'a last-ditch attempt' to reduce the intensity of the fire in the area.<sup>83</sup>

Minutes after the back-burn had been lit it was sucked back towards the main fire. But spotting from the main fire was being lobbed over the top of the back-burn towards Mr Fitzgerald and his crew. Mr Fitzgerald gave the order to fall back. While they were evacuating, Mr Fitzgerald and his crew were caught by the main fire. The command vehicle Mr Fitzgerald was driving in was hit by what he described as 'a great big ball of radiant heat' that set the car alight, destroying two tyres.<sup>84</sup>

### **Divisional commands**

On 7 February Mr Holland, an experienced volunteer firefighter, was Group Officer for the Whittlesea – Diamond Valley Group. It appears that, largely on his initiative, Whittlesea was established as a Divisional Command for the Kilmore East fire. He stated:

Throughout the day we had minimal contact with Kilmore ICC. We were receiving no direction from Kilmore about the fire fight. At approximately 4.00pm, the fire burned close to Whittlesea. We were for all intents and purposes acting independently and reacting to the fire in our area.<sup>85</sup>

At 16:30, as spot fires entered the jurisdiction of the Kangaroo Ground ICC, the centre was activated as a second Divisional Command. It reported and took direction from the Incident Controller and operations officer at Kilmore but was not given responsibility for the Kilmore East fire on that day.<sup>86</sup>

The Kangaroo Ground Incident Management Team had an early understanding of the potency of the fire and the risk of danger to people in its path. But it was not the designated ICC for the fire, so it was not authorised to issue threat messages or other information about the fire. During the afternoon of 7 February the fire front moved south into the area of the Kangaroo Ground ICC footprint.<sup>87</sup>

By mid-afternoon Mr Lawrence and the IMT at Kangaroo Ground concluded that they were in a better position than the Kilmore IMT to manage the fire. A number of times during the afternoon both Mr Barca and Mr Lawrence expressed to Mr Graeme Armstrong, Operations Manager for Region 13, concern about the appropriateness of the Kilmore IMT retaining responsibility for the fire. On all occasions Mr Armstrong told them the fire would continue to be managed by the Kilmore IMT. It was not until 05:42 on 8 February that Kangaroo Ground was granted control of the fire.<sup>88</sup>

The Kangaroo Ground Divisional Command received reports of casualties from the Arthurs Creek captain as early as 17:00 on 7 February.<sup>89</sup>

At Kinglake the power failed at 16:55; soon after, heavy smoke began entering the town from the direction of St Andrews. By 17:45 Kinglake was under heavy ember attack. Spot fires burned close to the CFA fire station. The sky was dark. At the Parks Victoria office near National Park and Pine Ridge Roads the park ranger was aware of the fire approaching on three fronts.<sup>90</sup>

Mr Paul Hendrie, captain of the Kinglake CFA brigade, described the situation in the centre of Kinglake as the fire front approached:

Then the smoke came over and blackened out like night. The lights went out in the station ... There were 200 people in the street outside the station and 100 people in the station ... I called for volunteers from the people in the station and we took a pump and hoses to the pub ... The mobile phones went dead and the power went ... The fire front was still a bit away at this time, about 100 metres down St Andrew's Road, but there was lots of spotting ... I don't know how long we were under siege. I lost all track of time.<sup>91</sup>

At 17:20, contrary to operational procedure, Mr Lawrence authorised an urgent threat message about the Kilmore East fire to be released from the Kangaroo Ground ICC—despite Kangaroo Ground not being the ICC for the fire at that time. The message featured the communities that had been the subject of the 15:02 threat message that was not released. The 17:20 release was authorised because of Kangaroo Ground's continuing inability to make contact with the Kilmore ICC and in recognition that it was 'a priority to issue those messages'. Mr Barca was not aware that Mr Lawrence had unilaterally decided to issue this message.<sup>92</sup>

### The wind change

The south-westerly wind change extended the eastern flank of the fire from Clonbinane to Chum Creek. The change progressed across the fire ground from about 17:40, passing through Yarra Glen and Whittlesea between 17:40 and 18:10, through Kinglake and Kinglake West between 17:50 and 18:20, through Glenburn between 18:15 and 18:45, and through Flowerdale between 18:30 and 19:00. Temperatures dropped 10 degrees in 20 minutes following the change. At 17:45, when the wind change reached the Kangaroo Ground tower, the tower observer issued a red flag warning.<sup>93</sup>

Patterns of fire behaviour became even more complex as a result of the wind change. Some residents were exposed to severe fire behaviour for an extended time and were uncertain about the direction the fire front was coming from. For all witnesses who gave evidence before the Commission, facing the fire was terrifying. Many spoke of the noise of the fire—'like a jet plane coming straight at you' or '10 to 12 jumbo jets screaming their lungs out all at once. It was horrific, the noise'.<sup>94</sup>

Mr John O'Neill, a resident of Steels Creek, described the fire front reaching his house:

I could hear the approaching fire front ... It sounded like ten or twenty steam trains rumbling towards us at a very high roar. I also noticed that the sky turned red, black and purple. Almost immediately the fire front hit us. I screamed at my sons to come into the house ... Once inside, the fire front sounded like a hurricane. Burning embers slapped into our windows and the rest of the house ... It was like being inside a washing machine on spin cycle and full of fire and embers.<sup>95</sup>

Mr O'Neill said the fire front took about 45 minutes to pass and that he and his family spent the following seven hours fighting the fire. Ten people died in Steels Creek, among them four in Old Kinglake Road.<sup>96</sup>

The south-westerly wind change brought the full front of the fire to the township of Kinglake West. Burn and char patterns show that the change altered the direction of the fire in the Kinglake area, including at National Park Road, the Heidelberg–Kinglake road and Bald Spur Road. In Bald Spur Road alone 22 people died.<sup>97</sup>

The wind change's impact on the fire was enormous. The fire's eastern flank became an extraordinarily wide fire front of increased intensity. The front moved north and north-east in a series of running tongues, up slopes and gullies, through the settlements of Kinglake and Pheasant Creek. The fire burned more intensely in roadside reserves, consuming the fine fuels not present in paddocks. This further increased the fire's intensity, rate of spread and spotting. Twelve people died in Kinglake; a further 19 died in Kinglake Central.<sup>98</sup>

By 18:00 CFA tankers, pumpers and communications vehicles were responding to new fires at Humevale, Strathewen, Arthurs Creek, Yarra Glen, Gruyere and Healesville. All these fires were caused by spotting after the wind change. One person died in Yarra Glen. At St Andrews and Dixons Creek CFA tankers, surprised by the wind change, became trapped and experienced burnovers.<sup>99</sup>

At about 18:48 Mr Williamson received a report of a seriously injured person trapped in a dam at Coombs Road, Kinglake West. The road was completely blocked by fallen trees, and Mr Williamson and his crew had to cut their way through paddocks to get to Coombs Road. At 19:00 they arrived at the dam and were able to evacuate the patient to the Whittlesea staging area.<sup>100</sup>

Mr David McGahy, captain of the Arthurs Creek CFA brigade, arrived in Strathewen at about 19:00. He told the Commission:

The scene that confronted me when I first saw Strathewen was—it was indescribable. There literally wasn't anything that wasn't burnt, that wasn't destroyed ... We came over the hill and the young chap that was driving for me, he saw his parents' house fully enveloped in flames ... it was very difficult. I got further up Chads Creek Road ... and I met a resident on the road and he said, 'There's a body up there'. I went up and there was a chap I had known for 40 years dead in the middle of the oval.<sup>101</sup>

Twenty-two people died in Strathewen, six of them in Chads Creek Road. A further two died in the nearby township of Arthurs Creek.<sup>102</sup>

From Strathewen and Humevale the fire headed generally north, through Kinglake and Castella and along the Melba Highway towards the settlement of Glenburn.<sup>103</sup>

After the wind change the fires in the Hazeldene and Flowerdale areas travelled north-east and east, emanating from the eastern flank of the fire. Fire had been reported at Flowerdale as early as 19:40, but the main fire front did not reach the Flowerdale Hotel until about 23:20. One person died in Flowerdale.<sup>104</sup>

The Kilmore East – Wandong section of the fire headed generally north and north-east towards Strath Creek and Reedy Creek, where it arrived at 20:00, burning through the remainder of the Wallaby Creek catchment, Kinglake National Park and the Mt Disappointment forest. During the night the fire reached the settlement of Hazeldene. Ten people died in Hazeldene, five of them in Long Gully Road; another person died in Reedy Creek.<sup>105</sup>

The wind change also caused fires of very high intensity in the Castella–Toolangi–Glenburn region. Two people died in Toolangi. Similarly, the change in wind direction caused a fire of very high intensity to travel north and north-east towards Strath Creek, where one person died.<sup>106</sup>

Mr David Cooper, CFA Deputy Group Duty Officer, was one of the first people to reach Kinglake after the fire front had passed. At about 22:20 he and his crew arrived at the fire station, having cut their way in from Kinglake West. He described what he saw when he arrived:

There [were] massive amounts of people there ... I would say somewhere in the vicinity of 150 to 200 people in the general vicinity of the fire station ... They had very seriously burnt and injured people in the fire station at that time. The great majority of them needed immediate transport. It wasn't possible because at that stage all ways in and out of Kinglake were impassable.<sup>107</sup>

Eight people were in a critical condition, and up to 50 others required reasonably urgent treatment. Mr Cooper helped organise transport for the most seriously injured.<sup>108</sup>

## 8 February

Early in the morning of 8 February, in response to reports that up to 20 people were trapped in a house occupied by the Tully family in Strathewen, Mr McGahy, travelling on foot, cut his way through to the house:

The roads were totally impassable. Tullys was about a two-and-a-half-hour walk for us ... I made a decision I was going to walk in ... It was rather eerie ... by this stage the wind had dropped, the moon had come out, and we were walking ... the only noise really [was that of] trees crashing. It was a very slow walk because you would only go 3 or 4 metres and you would be climbing over, under or around logs and trees.<sup>109</sup>

When Mr McGahy and his crew arrived at the Tullys' they found that all 19 people in the house had survived.<sup>110</sup>

Nillumbik Shire established emergency relief centres at Diamond Creek, St Andrews and Arthurs Creek. The Diamond Creek centre was opened at 19:00 on 7 February; the St Andrews and Arthurs Creek centres were opened after 7 February. The three centres offered support services and material aid to displaced residents and other bushfire-affected people and provided a venue from which the Department of Human Services and Centrelink could administer bushfire support grants.<sup>111</sup>

The Nillumbik Municipal Emergency Coordination Centre operated 24 hours a day until 10 February and then from 08:00 to 20:00 until it was deactivated on 22 February. It received requests for equipment, catering, transport, fuel, first aid supplies, and assistance with disposal of livestock. Mr Conal Creedon, Group Manager of Infrastructure Services at Nillumbik Shire Council, noted that there was initially a great deal of confusion and duplication of requests being made to the MECC.<sup>112</sup>

The South Morang emergency relief centre closed at about 20:00 on 8 February; the Whittlesea emergency relief centre remained open until 9 April, providing services to about 5,200 people during its two months of operation.<sup>113</sup>

The Kilmore East fire was devastating. It resulted in the deaths of 119 people. More than 1,200 houses were destroyed. Towns lost vital elements of their infrastructure—police stations, water treatment plants, SES depots, power substations, communications towers, churches, community centres, government facilities, primary schools, kindergartens, child care centres and businesses.<sup>114</sup>

## 5.2 COMMUNICATIONS

Making contact with the Kilmore Incident Control Centre was a constant problem. Of 530 incoming calls between 13:00 on 7 February and 12:00 on 8 February, 339 (or 64 per cent) were not connected for various reasons, including a busy signal, or were simply not answered.<sup>115</sup>

The Kangaroo Ground ICC used the Kilmore brigade's advertised telephone number to make 18 calls to the Kilmore ICC seeking information and updates. The 14 calls attempted between 13:54 and 17:35 on 7 February failed.<sup>116</sup>

Like others, Mr Holland, the local group officer who had become a Divisional Commander for the fire, had great difficulty contacting the Kilmore ICC. In fact, he received no official confirmation that the Kilmore ICC was responsible for managing the fire.<sup>117</sup> He noted the lack of operational planning:

The operations on the day were hampered by the lack of current communications plans for the Kilmore and Kangaroo Ground Level 3 ICC footprints. The plans we were working with allocated the area of the fire to the now redundant Diamond Creek Incident Control Centre.<sup>118</sup>

The Kinglake West brigade had no contact at all with the ICCs at Kilmore or Kangaroo Ground (the ICC closest to Kilmore). Ms Karen Barrow, second lieutenant of the Kinglake West brigade, stated:

We had no more intelligence than the average resident. The mere fact that no one had tried to contact us gave me a false sense of security. It also meant I was making uninformed decisions that could have led to further loss of life—both members of the public and crew.<sup>119</sup>

Additionally, on 7 February Victoria Police did not receive from the CFA sufficient information about the run of the Kilmore East fire. This limited its ability to plan. A number of municipal emergency response coordinators found it difficult to obtain information about the progress of the fire. The CFA told Senior Sergeant Scully, the Municipal Emergency Response Coordinator for Nillumbik Shire, it did not have sufficient resources to provide a liaison officer to the municipal emergency coordination centre, whilst a liaison officer appointed to the Yarra Ranges MECC was unable to log on to an 'overloaded' CFA computer system. The liaison officer was thus unable to provide information to allow the MECC to 'track the fires and forward plan'. The liaison officer appointed to the Mitchell MECC could not contact the Incident Controller and could not retrieve up-to-date information from the CFA intranet. Police liaison officers at the Kilmore ICC were unable to resolve the problem. The Yarra Ranges MECC had to rely on a council staff member, who was a CFA volunteer, to obtain information on the fire's progression. The MERC was also monitoring his police radio and CFA radio for information.<sup>120</sup>

Because of difficulties obtaining information about the location and spread of the fire, one of Nillumbik's deputy municipal emergency resource officers, Mr Norm Golgerth, attended the Kangaroo Ground ICC in person on the evening of 7 February. He was able to obtain a CFA map predicting the path of the fire and an update on those areas that had already been affected.<sup>121</sup>

Senior Sergeant Scully also criticised the lack of information flowing to the Nillumbik MECC about the fire situation and the location of roadblocks from the police Divisional Operations Centre. As a result of the poor flow of information, he was unaware that Kinglake had been affected by the fire until well after the event.<sup>122</sup>

The problems the Kilmore East IMT had with outward communications might have been exacerbated by the difficulties they were having in processing information within the IMT. Mr Kreltshheim, the level 3 Incident Controller who replaced Mr Gregory Murphy, described being unable to cope with the 'data overload' coming into the ICC. The Commission heard evidence that Mr Kreltshheim found that attempts by his team to document an incident action plan during his shift were continually overrun by events.<sup>123</sup>

Communications and information sharing are discussed in Chapter 3 of Volume II.

### 5.3 WARNINGS

Initially, no information officer was appointed to the Kilmore Incident Management Team. Mr Murphy was advised that fire information releases would be processed through the Seymour Regional Emergency Coordination Centre. He was aware of threat messages about the Kilmore East fire being issued, but he was unaware of the frequency or content of the messages and did not see any such messages before 15:30.<sup>124</sup>

By 14:00 it was understood that the fire was burning out of control and had considerable potential to endanger life and property. Observations and reports made by experienced CFA personnel amply demonstrated the fire's severity. But the threat messages failed to convey this information and failed to promptly identify towns and communities in the probable path of the fire. The evidence about warnings for the Kilmore East fire was detailed and analysed by the Commission in its interim report. Suffice here to say that warnings to communities in the path of the fire were not timely and did not reflect the available fire information. Crucial warnings to communities in the path of the fire were not provided or were late.<sup>125</sup>

The delays in providing information to the public were the consequence of a number of factors, among them the following:

- Until 16:00 the information officer for the Kilmore ICC was based at the Seymour RECC, where he was overwhelmed with other duties. Threat messages about the Kilmore East fire were therefore not seen or signed by the Incident Controller at Kilmore. Mr Rees stated that if the information officer is located away from the ICC it is probable that this will negatively affect the information flow from the ICC. That is what happened on 7 February.<sup>126</sup>
- Between 12:40 and 14:25 no information about the Kilmore East fire was posted to the CFA website.<sup>127</sup>

- There was a delay in forwarding messages from the information officer to the integrated Emergency Coordination Centre. The situation was at times exacerbated by a further delay in the iECC posting important messages to the CFA website. For example, an urgent threat message bearing the time 17:20—warning communities from Kinglake to Flowerdale of the potential direct impact of the Kilmore East fire—was received at the iECC at 17:41 but was not posted to the CFA website until 17:55, five minutes after the message was due to be reviewed.<sup>128</sup>
- Some urgent threat messages were not posted to the CFA website at all. An urgent threat message prepared at Kilmore at 16:10—warning of the potential direct impact of the Kilmore East fire on communities such as Kinglake—was not received at the iECC until about 16:38 and, even when it had been received, it was not uploaded to the CFA website.<sup>129</sup>
- The iECC failed to monitor the Kilmore ICC in relation to the issuing of warnings.
- The warnings that were prepared did not factor in the probable effects of the south-westerly wind change on the fire. When the wind did change, the fire’s eastern flank (which extended from Clonbinane to Chum Creek) became the fire front and impinged on towns such as Kinglake West, Kinglake, Pheasant Creek, Steels Creek, Kinglake Central, St Andrews, Dixons Creek, Flowerdale, Reedy Creek, Hazeldene, Silver Creek, Castella, Toolangi, Glenburn and Strath Creek. The effects of the change should have been carefully monitored and should have been taken into consideration earlier when warnings for towns at risk were being prepared.

Superintendent Peter Billing, Divisional Emergency Response Coordinator for Seymour Division, also gave evidence that there were some inadequacies in police radio communications. He noted that a number of officers were deployed from metropolitan areas without equipment that would allow them access to rural radio networks. This affected the ‘proper management’ of roadblocks and was also a safety concern.<sup>130</sup>

Warnings are discussed in Chapter 1 of Volume II.

## 5.4 ROADBLOCKS

During 7 February numerous road closures were established in the area affected by the Kilmore East fire, mostly at the request of the CFA. Application of ‘full’ and ‘partial’ roadblocks was, however, inconsistent: some police officers exercised discretion in interpreting instructions; others interpreted instructions strictly. In the Yarra Ranges alone 23 roadblocks were in position at one point—among them roadblocks closing the Melba and Maroondah Highways.<sup>131</sup>

Inspector Ian Lanyon, from Victoria Police’s Leadership Development Centre, played a central role in overseeing the operation of roadblocks. He stated that by 9 February there was ‘considerable pressure’ to downgrade full road closures to partial closures so that residents could return to their homes. Because of safety concerns, however, and the continuing search for missing people, police considered it necessary to introduce a system that would distinguish residents and service providers from members of the general public. Police provided red hospital bands to ‘residents and those with a pecuniary interest in the area’ and white bands to providers of essential services. These individuals were then allowed to pass through the partial road closures.<sup>132</sup>

The Commission considers that the use of coloured bands to identify people allowed to pass through partial road closures was a simple, practical and successful approach to a problem that arose many times at roadblocks during and after the fires.

Roadblocks are discussed in Chapter 2 of Volume II.

## 5.5 FUEL REDUCTION

In numerous places the rate of spread of the Kilmore East fire was appreciably slowed by areas that had previously been subject to prescribed burning.

After the south-westerly wind change the fire encountered an area that had undergone fuel-reduction burning during the preceding year. This slowed the advance of the fire by about an hour to an hour-and-a-half, delaying the time when the fire reached the boundary between public forest land and rural communities to the north. It also reduced the intensity of the fire.<sup>133</sup>

In other areas, however, recent fuel-reduction burns did not lead to reduced fire intensity. The disparity is probably a result of the size of the fuel-reduction burn in each case and possibly the effectiveness of fuel removal during the burns. Terrain might also have been important.<sup>134</sup>

A study by Dr Lachie McCaw, Principal Research Scientist at the Western Australian Department of Environment and Conservation found that in areas where prescribed fuel reduction had occurred three or more years previously there was little or no impact on a fire's severity. In contrast, in an area north of Kinglake burnt by bushfire in 2006 the rate of spread of the fire on 7 February 2009 was obviously reduced, and the fire changed from a crown fire or very intense surface fire to a surface fire of moderate intensity. In fact, a large proportion of the January 2006 fire area did not burn again on 7 February 2009.<sup>135</sup>

Overall, there was a clear effect of more recent fuel-reduction burning on areas burnt following the wind change: the fire's severity was reduced and its arrival in a number of places along its ultimate northern perimeter was delayed. The effect was, however, limited to 1-year-old fuel-reduction burns and the bushfire of three years previously.<sup>136</sup>

Fuel management is discussed in Chapter 7 of Volume II.

## 5.6 CONCLUSIONS

In the Commission's view the lack of pre-planning for the Kilmore Incident Control Centre had significant effects on the centre's preparedness and ultimately its ability to manage the Kilmore East fire. It also meant there were inadequate systems and protocols for providing accurate and timely information about the fire.

Considering the severe conditions predicted for 7 February, the Commission cannot accept the explanations given for the complete lack of effort made to allocate staff to specific ICCs in CFA Region 12. This contrasts with the approach taken in every other region the Commission examined. Other regions also faced shortages of qualified personnel, but they compensated for this by concentrating the personnel in a smaller number of ICCs.

The Commission is also concerned that on 7 February the CFA's Chief Officer and State Duty Officer both thought CFA Region 12 level 3 ICCs generally—and Kilmore (and Alexandra) ICCs specifically—were ready for a 'hot start' when this was not the case. This should have been clear from the incident management team planner for Region 12 that Mr Creak provided to the integrated Emergency Coordination Centre: it showed that important IMT personnel had not been allocated to specific ICCs. Mechanisms allowing the CFA Chief Officer to monitor IMT preparation were inadequate.

Not positioning an Incident Controller at the Kilmore ICC on 7 February before the ignition of the Kilmore East fire (even allowing for the lack of trained personnel) proved a serious shortcoming. It inhibited planning and preparation and meant that initially Kilmore brigade personnel at the ICC had to start dealing with a serious fire while suffering from the distraction of not having a properly constructed team immediately on hand. It was unreasonable to place the burden of creating and then managing an IMT for a complex, fast-moving fire on unprepared and underqualified personnel. Further, the mere production of an IMT planner setting out the availability of people to fill positions across the region fell well short of the planning necessary for a day such as 7 February. Other regions were much better prepared.

Despite the IMT planner showing the potential availability of DSE staff, there were no DSE personnel at the Kilmore ICC. This is in contrast with the situation at the Kangaroo Ground ICC (in another CFA region) and contrary to the expectations of Mr Rees and Mr Gregory Murphy, the initial Incident Controller of the Kilmore East fire.<sup>137</sup> The Commission considers that the fact that DSE personnel were not used stemmed from an absence of suitable planning and preparedness at the regional level.

It appears no action was taken at the regional or state level to redress the shortage of personnel in CFA Region 12 before 7 February. For such a day this was unacceptable. The CFA Chief Officer, State Coordinator and State Duty Officer should have known that the Kilmore ICC had no level 3 incident management team pre-positioned and that it was not ready for a hot start on 7 February.

Preparations and pre-planning by Victoria Police and municipal authorities were sound. There was evidence of long-term preparedness, such as the extensive emergency management planning by Yarra Ranges Shire, which involved, among other things, simulated emergency exercises. The scenarios for these exercises had included fire, landslide and flood, and in November 2008 the scenario involved multiple bushfires—not unlike the situation that unfolded on 7 February 2009.<sup>138</sup>

In the Commission's view the initial operational response to the Kilmore East fire was appropriate and prompt. CFA brigades were at the scene of the fire quickly, and first attack began within 10 minutes of the initial pager call. The need for additional resources was recognised and the response was rapid.

There was confusion about command and who had responsibility for managing the fire. This appears to have been because the Regional Manager gave the Seymour Group Headquarters initial responsibility for the fire. This had several consequences:

- Critical fire ground information was not conveyed to the Kilmore ICC because of communication difficulties and a lack of awareness that the Kilmore ICC was to become in charge of the fire.<sup>139</sup>
- Aircraft communicated directly with the Seymour Regional Emergency Coordination Centre, and information on aircraft activities was not passed on to the Kilmore ICC.<sup>140</sup>
- Fire situation maps and prediction maps generated by the integrated Emergency Coordination Centre were not provided to the Kilmore ICC.<sup>141</sup>

In hindsight, this appears to be because communications with the Kilmore ICC remained problematic throughout the day, and the well-resourced and well-prepared Kangaroo Ground ICC, which represented an alternative location that could have been given responsibility for the Kilmore East fire, was not effectively used until later in the day.

The Kilmore IMT's failure to provide adequate warnings illustrates the need for pre-planning, good communications systems, IMT roles dedicated to this task, and procedures for checking that warnings are being received. It is not a personal critique of the individuals who were gathered together on an ad hoc basis during the afternoon of 7 February. It does, however, demonstrate how a lack of planning and preparation by regional- and state-level personnel can compromise community safety.

The communication difficulties are illustrative of a failure in systems at the Kilmore ICC, but this must be considered in the context of a day on which the IMT personnel were given no opportunity to properly prepare themselves or institute systems until after the fire had started.

The Commission also considers there were shortcomings in the inspection of electrical assets. This is discussed in Chapter 4 of Volume II.

Use of liaison officers by both the municipal emergency coordination centres (including police liaison officers) and the incident control centres (including liaison officers from the CFA and DSE) was less than optimal. In some cases, liaison officers were not appointed; in others, although appointed, they were unable to obtain the information they needed.

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- 1 Exhibit 786 – Statement of Clow (WIT.3004.034.0004) [19.5]
  - 2 Exhibit 557 – Meteorological Aspects of the Kilmore East Fire (BOM.901.0048) at 0069
  - 3 Exhibit 4 – Supplementary Statement of Rees (WIT.004.002.0001) at 0006
  - 4 Exhibit 557 – Meteorological Aspects of the Kilmore East Fire (BOM.901.0048) at 0069
  - 5 Exhibit 557 – Meteorological Aspects of the Kilmore East Fire (BOM.901.0048) at 0069
  - 6 Exhibit 557 – Meteorological Aspects of the Kilmore East Fire (BOM.901.0048) at 0069
  - 7 Exhibit 22 – Statement of Williams, Annexure 1 (WIT.013.001.0012) at 0095
  - 8 Exhibit 4 – Supplementary Statement of Rees (WIT.004.002.0001) [14]
  - 9 Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [17]
  - 10 Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [17]
  - 11 Exhibit 980 – Correspondence – Houses Destroyed – Breakdown by Fire (CORR.1003.0048\_R) at 0048\_R
  - 12 Exhibit 786 – Statement of Clow (WIT.3004.034.0004) [19.5]
  - 13 Exhibit 939 – Details Regarding Emergency Response (CFA.600.005.0195) at 0195, 0198; Exhibit 939 – MFB Response (MFB.001.001.0040) at 0040; Exhibit 939 – Day by Day Breakdown – Kilmore East (DSE.HDD.0048.0545\_05); Exhibit 939 – Aircraft Data 0809 (DSE.HDD.0048.0544\_20) at 0544\_26–0544\_27
  - 14 Exhibit 994 – Kilmore East Fire – Fire Spread Map (CFA.600.006.0005)
  - 15 Exhibit 3 – Statement of Rees (WIT.004.001.0001) at 0025, 0082; Rees T2415:5–T2415:27
  - 16 Exhibit 127 – Statement of Paterson, Attachment 8 (WIT.3004.010.1057); Paterson T4261:7–T4261:27; Rees T2415:18–T2415:27
  - 17 Creak T10854:20–T10855:2, T10855:9–T10855:15
  - 18 Creak T10854:22–T10855:2, T10856:15–T10856:26, T10859:7–T10859:21, T10860:5–T10860:27, T10861:18–T10862:3; Rees T2416:15–T2417:3; Paterson T4262:4–T4262:8
  - 19 Creak T10854:22–T10855:2, T10856:15–T10856:26, T10859:7–T10859:21, T10860:5–T10860:27, T10861:18–T10862:3; Rees T2416:15–T2417:3; Paterson T4262:4–T4262:8
  - 20 Creak T10854:18–T10856:5
  - 21 Barca T3466:17–T3467:4
  - 22 Exhibit 44 – Statement of Munns (WIT.3004.001.0065) [3]–[4]; Exhibit 50 – Statement of Lawrence (WIT.3004.001.0197) [14]; Lawrence T1570:30–T1571:17; Barca T3463:7–T3463:11, T3463:20–T3464:5, T3464:6–T3464:25, T3465:29–T3466:16
  - 23 Exhibit 654 – Statement of Humberstone (WIT.3010.002.0108) [16]
  - 24 Exhibit 649 – Statement of Scully (WIT.3010.001.0418) [10]–[11], Annexure 1 (WIT.3010.001.0425); Exhibit 650 – Statement of Creedon (WIT.4011.001.0001) [53]; Exhibit 640 – Statement of Butera (WIT.3010.001.0098) [35]
  - 25 Exhibit 127 – Statement of Patterson, Attachment 8 (WIT.3004.010.1057); Patterson T4261:7–T4261:27; Rees T2415:18–T2415:27
  - 26 Rees T2417:4–T2417:25
  - 27 G Murphy T1262:20–T1263:19
  - 28 Exhibit 506 – Statement of Creak, Annexure 4 (WIT.3004.008.0347); Creak T10854:22–T10855:12, T10861:1–T10861:9
  - 29 Coleman T10931:18
  - 30 Kreltzeim T1286:22–T1286:23
  - 31 Exhibit 548 – Correspondence – Safety Advisors (CORR.0911.0107\_R)
  - 32 Exhibit 4 – Supplementary Statement of Rees (WIT.004.002.0001) [14]
  - 33 Exhibit 526 – Sweeting Consulting Report – Kilmore East Fire (VPO.001.039.0132) at 0133–0134, 0139–0140, 0155–0157, 0161–0163, 0168–0169, 0175; Sweeting T11374:3–T11374:19, T11379:1–T11379:7, T11383:21–T11383:26
  - 34 Exhibit 525 – HRL Technology Report – Kilmore East Fire (VPO.001.039.0016) at 0035–0037; Exhibit 526 – Sweeting Consulting Report – Kilmore East Fire (VPO.001.039.0132) [193]–[197]; Exhibit 237 – Statement of Lane (WIT.5100.001.0001\_R) [169]; Leahy T11006:12–T11006:20, T11013:20–T11014:8; Rush T10972:1–T10972:31; Better T11299:4–T11299:10, T11316:13–T11317:22
  - 35 Exhibit 528 – Statement of Leech (WIT.7507.002.0001) [53]–[63]
  - 36 Exhibit 525 – HRL Technology Report – Kilmore East Fire (VPO.001.039.0016) at 0056
  - 37 Lane T11104:10–T11104:28; Sweeting T11361:4–T11361:18, T11366:6–T11366:29, T11376:28–T11377:10
  - 38 Exhibit 4 – Supplementary Statement of Rees (WIT.004.002.0001) [14]; Coleman T10931:17–T10932:16
  - 39 Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [9]–[10], [13]–[15]; Exhibit 513 – Statement of Court (WIT.3004.021.0292) [34]
  - 40 Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [13]–[15]; Exhibit 513 – Statement of Court (WIT.3004.021.0292) [34]; Court T10959:22–T10960:11, T10960:15–T10960:17
  - 41 Exhibit 513 – Statement of Court (WIT.3004.021.0292) [39]–[42]
  - 42 Submissions of the State of Victoria – Kilmore East (Other than Cause) (RESP.3000.005.0181) [18], Attachment 2 (RESP.3000.005.0255) [2.36], [2.61]–[2.67], [2.93]; Court T10965:1–T10965:12
  - 43 Exhibit 513 – Statement of Court (WIT.3004.021.0292) [44], [58]; Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [43]–[52]; Crowe T10987:13–T10987:18; Court T10964:28–T10964:31
  - 44 Exhibit 657 – Statement of Murphy (WIT.3010.001.0362) [28]–[29]; Exhibit 4 – Supplementary Statement of Rees (WIT.004.002.0001) [17]; Williamson T4436:25–T4437:7

- 45 Exhibit 652 – Statement of Dixon (WIT.3004.021.0348) [18], [28]; Exhibit 4 – Supplementary Statement of Rees (WIT.004.002.0001) [16]; Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [22]; Exhibit 861 – Statement of Ryan (WIT.3024.006.0001) [202]
- 46 Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [14], [18], [37]; Murphy T1262:20–T1263:19, T1263:22–T1263:28
- 47 Exhibit 41 – Statement of Murphy (WIT.3004.001.0001) [23]; Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [14], [18]–[20], [30], [37]; T1262:20–T1263:19, T1263:22–T1263:28
- 48 Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [30], [56], [59]; Exhibit 506 – Statement of Creak, Annexure 4 (WIT.3004.008.0347); Murphy T1264:3–T1264:21, T1265:18–T1266:11
- 49 Creak T10871:10–T10871:21; Kretzschheim T1286:22–T1286:23
- 50 Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [61]
- 51 Exhibit 669 – Statement of Fitzgerald (WIT.3026.001.0154) [14]
- 52 Exhibit 4 – Supplementary Statement of Rees (WIT.004.002.0001) [17], Annexure 6 (WIT.004.002.1459) at 1466; Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [57]–[58]
- 53 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [47]
- 54 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [62]; Exhibit 132 – Statement of Williamson (WIT.3004.009.0029) [38]–[41]; Crowe T10988:11–T10988:13, T10988:26–T10989:1
- 55 Exhibit 513 – Statement of Court (WIT.3004.021.0292) [75]
- 56 Exhibit 513 – Statement of Court (WIT.3004.021.0292) [77]–[81]
- 57 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [59]; Exhibit 132 – Statement of Williamson (WIT.3004.009.0029) [6], [8]; Williamson T4428:8–T4428:22, T4440:20–T4440:31
- 58 Exhibit 652 – Statement of Dixon (WIT.3004.021.0348) [42]
- 59 Exhibit 649 – Statement of Scully (WIT.3010.001.0418) [14], [17]; Exhibit 650 – Statement of Creedon (WIT.4011.001.0001) [67]–[70]
- 60 Exhibit 107 – Statement of Barca (WIT.3026.001.0001) [32]–[43]; Exhibit 44 – Statement of Munns (WIT.3004.001.0065) [32]
- 61 Exhibit 504 – Statement of Creak (WIT.3004.021.0148) [94]; Exhibit 505 – Statement of Murphy (WIT.3004.021.0001) [47], [50]; Exhibit 132 – Statement of Williamson (WIT.3004.009.0029) [45]
- 62 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [62], [90], [94], [117]–[119]; Crowe T10988:26–T10989:1
- 63 Exhibit 651 – Statement of Hocking (WIT.4012.001.0001) [45]–[47]
- 64 Exhibit 651 – Statement of Hocking (WIT.4012.001.0001) [52]–[55]
- 65 Exhibit 651 – Statement of Hocking (WIT.4012.001.0001) [58]–[60], [64]
- 66 Exhibit 107 – Statement of Barca (WIT.3026.001.0001) [32]–[43]; Exhibit 44 – Statement of Munns (WIT.3004.001.0065) [32]
- 67 Lawrence T1588:30–T1589:2
- 68 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [71]–[73], [86]–[89]; Crowe T10987:26–T10988:5
- 69 Exhibit 132 – Statement of Williamson (WIT.3004.009.0029) [51]; Williamson T4447:12–T4448:9
- 70 Exhibit 132 – Statement of Williamson (WIT.3004.009.0029) [54]–[61]; Williamson T4448:10–T4445:31
- 71 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [91]–[92]
- 72 Murphy T1266:28–T1266:29; Hunter T1716:1–T1716:7, T1718:3–T1719:16
- 73 Exhibit 640 – Statement of Butera (WIT.3010.001.0098) [36]
- 74 Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [81]–[82]; Exhibit 132 – Statement of Williamson (WIT.3004.009.0029) [61]
- 75 Hunter T1720:4–T1721:18
- 76 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [75]; Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]
- 77 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [94]–[95]; Crowe T10989:2–T10989:30,
- 78 Exhibit 767 – Interactive Presentation – INTMEN 001825 (EXH.767.0001); Exhibit 765 – Interactive Presentation – INTMEN 001810 (EXH.765.0001); Exhibit 766 – Interactive Presentation – INTMEN 001867 (EXH.766.0001); Exhibit 764 – Interactive Presentation – INTMEN 001785 and INTMEN 001979 (EXH.764.0001); Exhibit 883 – Interactive Presentation – INTMEN 001831 (EXH.883.0001); Exhibit 768 – Interactive Presentation – INTMEN 001824 (EXH.768.0001); Exhibit 772 – Interactive Presentation – INTMEN 001826 (EXH.772.0001); Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]; Exhibit 205 – Interactive Presentation – INTMEN 001854 (EXH.805.0001)
- 79 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [109]–[111]; Crowe T10990:26–T10991:2
- 80 Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]; Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [107]; Crowe T10989:8–T10989:13, T10992:6–T10992:23
- 81 Keating T3246:4–T3246:11; Crowe T10989:8–T10989:13; McCormack T4100:1–T4100:5
- 82 Exhibit 132 – Statement of Williamson (WIT.3004.009.0029) [65]–[66]; Exhibit 548 – Summary of Burn Over Incidents (TEN.143.001.0001) at 0002; Exhibit 548 – Investigation Report Craigieburn Car (CFA.001.027.0044); Exhibit 548 – Investigation Report Sunbury Tanker 2 (CFA.001.027.0355); Exhibit 548 – Investigation Report Bulla Tanker 1 (CFA.001.027.0013); Exhibit 548 – Investigation Report Epping Tanker 1 (CFA.001.027.0128); Exhibit 548 – Investigation Report Greenvale Tanker 1 (CFA.001.027.0147); Exhibit 548 – Investigation Report Whittlesea Tanker 2 (CFA.001.027.0421); Exhibit 548 – Investigation Report Doreen Tanker 2 (CFA.001.027.0108)
- 83 Fitzgerald T16899:30–T16900:12, T16905:5–T16905:16

- 84 Fitzgerald T16908:18–T16908:28 T16912:17–T16912:19, T16913:9–T16913:12
- 85 Exhibit 653 – Statement of Holland (WIT.3004.021.0209) [83];
- 86 Exhibit 50 – Statement of Lawrence (WIT.3004.001.0197) [26]–[36]
- 87 Exhibit 3 – Statement of Rees, Attachment 7 (WIT.004.001.0246) at 0281; Exhibit 127 – Statement of Paterson, Attachment 3 (WIT.3004.010.0281) at 0445; Exhibit 107 – Statement of Barca (WIT.3026.001.0001) [48]; Exhibit 50 – Statement of Lawrence (WIT.3004.001.0197) [26], [36]; Cowan T3731:1–T3732:12; Lawrence T1597:24–T1597:28, T1613:17–T1613:24
- 88 Exhibit 107 – Statement of Barca (WIT.3026.001.0001) [48]; Exhibit 50 – Statement of Lawrence (WIT.3004.001.0197) [26], [36]; Lawrence T1597:17–T1597:28, T1613:17–T1613:24
- 89 Munns T1369:16–T1369:21
- 90 Exhibit 669 – Statement of Fitzgerald (WIT.3026.001.0154) [23], Annexure 1 (DSE.HDD.0087.0033); Exhibit 73 – Statement of McCulloch (WIT.043.001.0001\_R) [16], [17], [21], Ruhr T11890:29–T11891:10
- 91 Exhibit 25 – Statement of Hendrie (WIT.027.001.0001) [18]–[19]
- 92 Exhibit 44 – Statement of Munns (WIT.3004.001.0065) at 0116; Lawrence T1577:30–T1578:11; Barca T3482:10–T3482:13
- 93 Exhibit 32 – Expert Report of Tolhurst on the Physical Nature of the Victorian Fires (EXP.003.001.0017) at 0022; Exhibit 3 – Statement of Rees (WIT.004.001.0001) [234]–[235]; Exhibit 557 – Meteorological Aspects of the Kilmore East Fire (BOM.901.0048) at 0060–0061; Exhibit 99 – Hurstbridge Captain Car Log (WIT.054.001.0004); Cooper T3261:18–T3261:24; Keating T3237:23–T3238:8; Waller T4360:8–T4360:22
- 94 Exhibit 672 – Bushfire CRC Final Report (CRC.300.007.0001\_R) at 0014\_R; Mortimer T11228:18–T11228:21; Spooner T478:20–T478:22
- 95 Exhibit 97 – Statement of O’Neill (WIT.047.001.0001\_R) [21]–[22]
- 96 Exhibit 97 – Statement of O’Neil (WIT.047.001.0001) [24]; Exhibit 967 – Interactive Presentation – INTMEN 001821 (EXH.967.0001); Exhibit 968 – Interactive Presentation – INTMEN 001910 (EXH.968.0001); Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]
- 97 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [144]; Exhibit 806 – Interactive Presentation – INTMEN 001847 (EXH.806.0001); Exhibit 807 – Interactive Presentation – INTMEN 001850 (EXH.807.0001); Exhibit 878 – Interactive Presentation – INTMEN 001795 and INTMEN 001856 (EXH.878.0001); Exhibit 877 – Interactive Presentation – INTMEN 001837 (EXH.877.0001); Exhibit 879 – Interactive Presentation – INTMEN 001809 (EXH.879.0001); Exhibit 884 – Interactive Presentation – INTMEN 001835 (EXH.884.0001); Exhibit 944 – Interactive Presentation – INTMEN 001800 (EXH.944.0001)
- 98 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [146]; Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]
- 99 Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]; Exhibit 548 – Summary of Burn Over Incidents (TEN.143.001.0001) at 0001–0004; Cooper T3261:18–T3261:28
- 100 Exhibit 132 – Statement of Williamson (WIT.3004.009.0029) [79]–[81]
- 101 McGahy T2253:6–T2253:17
- 102 Exhibit 773 – Interactive Presentation – INTMEN 001899 (EXH.773.0001); Exhibit 774 – Interactive Presentation – INTMEN 001817 (EXH.774.0001); Exhibit 775 – Interactive Presentation – INTMEN 001891 (EXH.775.0001); Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]
- 103 Exhibit 4 – Supplementary Statement of Rees (WIT.004.002.0001) [24]
- 104 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [150], [153], [166]–[167]; Exhibit 114 – Statement of O’Halloran (WIT.058.001.0001\_R) [32]; Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]
- 105 Exhibit 43 – Statement of Glassford (WIT.028.001.001\_R) [16]; Exhibit 972 Interactive Presentation – INTMEN 002017 (EXH.972.0001); Exhibit 973 – Interactive Presentation – INTMEN 001802 (EXH.973.0001); Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]; Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [150–154], [169–171], [177]; Exhibit 759 – Statement of Strickland (WIT.3004.034.0025) [32.1]
- 106 Exhibit 514 – Supplementary Statement of Crowe (WIT.3004.022.0001) [169]–[171], [177]; Exhibit 215 – Supplementary Statement of Hollowood (WIT.3010.003.0287\_R) [18]
- 107 Cooper T3267:18–T3267:29
- 108 Exhibit 132 – Statement of Williamson (WIT.3004.009.0029) [90]; Cooper T3267:30–T3268:21
- 109 McGahy T2257:3–T2257:25
- 110 McGahy T2258:7–T2258:9
- 111 Exhibit 649 – Statement of Scully (WIT.3010.001.0418) [14], [17]; Exhibit 650 – Statement of Creedon (WIT.4011.001.0001) [67]–[70]
- 112 Exhibit 650 – Statement of Creedon (WIT.4011.001.0001) [64]–[66], [73]
- 113 Exhibit 651 – Statement of Hocking (WIT.4012.001.0001) [58]–[60], [64]
- 114 Exhibit 214 – Statement of Hollowood (WIT.3010.001.0338) [63]; Exhibit 11 – Statement of Esplin, Attachment 1 (WIT.005.001.0049) at 0113; Exhibit 980 – Correspondence – Houses Destroyed – Breakdown by Fire (CORR.1003.0048\_R) at 0048\_R
- 115 Exhibit 504 – Second Supplementary Statement of Creak (WIT.3004.021.0148) [174]–[175]
- 116 Exhibit 504 – Second Supplementary Statement of Creak (WIT.3004.021.0148) [174]–[175]
- 117 Exhibit 653 – Statement of Holland (WIT.3004.021.0209) [21]
- 118 Exhibit 653 – Statement of Holland (WIT.3004.021.0209) [88]
- 119 Exhibit 533 – Statement of Barrow (WIT.121.001.0001\_R) [131]
- 120 Exhibit 649 – Statement of Scully (WIT.3010.001.0418) [16], [26]; Exhibit 640 – Statement of Butera (WIT.3010.001.0098) [38]; Exhibit 657 – Statement of Murphy (WIT.3010.001.0362) [24], [34]

- 121 Exhibit 650 – Statement of Creedon (WIT.4011.001.0001) [58]–[61]
- 122 Exhibit 640 – Statement of Butera (WIT.3010.001.0098) [39]; Exhibit 649 – Statement of Scully (WIT.3010.001.0418) [26]–[27]
- 123 Exhibit 854 – Statement of Beasley (WIT.3004.042.0001) [112.2]; Beasley T17858:21–T17859:7, T17861:1–T17861:6
- 124 Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [66]; Murphy T1267:1–T1267:15
- 125 B Teague, R McLeod, S Pascoe, *2009 Victorian Bushfires Royal Commission: Interim Report*, Parliament of Victoria, Melbourne, August 2009, [9.101]–[9.149]
- 126 Caughey T1687:5–T1687:21, T1690:1–T1690:11, T1688:12–T1688:22; Rees T2420:16–T2420:21
- 127 Exhibit 149 – Statement of Henshaw (WIT.3004.009.0096) [70]–[72]
- 128 Exhibit 159 – Fire Information Release in Relation to Kinglake and Flowerdale (DSE.HDD.0017.0643) at 0643; Exhibit 149 – Statement of Henshaw (WIT.3004.009.0096) [83]
- 129 Exhibit 149 – Statement of Henshaw (WIT.3004.009.0096) [81]; Henshaw T4808:4–T4808:9
- 130 Exhibit 365 – Statement of Billing (WIT.3010.005.0018) [48]
- 131 Exhibit 654 – Statement of Humberstone (WIT.3010.002.0108) [26], [33], [35]–[37]
- 132 Exhibit 541 – Statement of Lanyon (WIT.3010.002.0001) [15]–[17]
- 133 Exhibit 722 – Expert Report of McCaw on Fuel Management (EXP.026.001.0001) at 0016; McCaw T14900:14–T14901:8
- 134 Exhibit 722 – Expert Report of McCaw on Fuel Management (EXP.026.001.0001) at 0016; McCaw T14902:2–T14903:2
- 135 Exhibit 722 – Expert Report of McCaw on Fuel Management (EXP.026.001.0001) at 0016–0017; McCaw T14904:14–T14904:24
- 136 McCaw T14904:31–T14905:16
- 137 Exhibit 3 – Statement of Rees (WIT.004.001.0001) [112]; Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [64]
- 138 Exhibit 640 – Statement of Butera (WIT.3010.001.0098) [12]–[18]
- 139 Williamson T4474:24–T4475:7; McGahy T2246:14–T2246:24; Hendrie T863:16–T863:19; Keating T3224:3–T3224:15, T3226:30–T3227:1
- 140 Exhibit 505 – Further Statement of Murphy (WIT.3004.021.0001) [21], [23], [78]
- 141 Exhibit 122 – Statement of Sutton (WIT.3024.001.0008) [68], Annexure 2 (DSE.CD03.0001.0074), Annexure 9 (DSE.CD03.0001.0035); Murphy T1268:8–T1268:16; Tolhurst T1737:8–T1737:23